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ABSTRACT

Drawn from the reports of separate research efforts conducted at the National Center for Research in Vocational Education, the four chapters in this volume examine from a variety of perspectives what vocational education should accomplish and is accomplishing. An executive summary begins the volume. In the first chapter, Rupert Evans examines the discrepancy between the public and legislative support for vocational education and benefits demonstrated by evaluation studies. Chapter 2, by Frank Pratzner and Jill Russell, examines the appropriate roles and functions of secondary and postsecondary vocational education. The major issue is whether occupationally specific training should be emphasized at the secondary school level. Floyd McKinney and Patricia Fornash, in chapter 3, draw upon background papers prepared by specialists in six disciplines to assess support that the basic theories and findings of these disciplines provide for 18 selected outcomes, or intended, positive consequences, of participation in vocational education. The fields represented are history, philosophy, psychology, sociology, economics, and futures research. In the final chapter, Morgan Lewis focuses on a limited number of labor market outcomes of secondary-level vocational education that have been researched in 10 different studies in recent years. (Author/YLB)

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Research and Development Series No. 247

PERSPECTIVES ON VOCATIONAL EDUCATION: PURPOSES AND PERFORMANCE

Morgan V. Lewis
Frank C. Pratzner
Editors

The National Center for Research in Vocational Education
The Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

1984

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For further information contact:

Program Information Office
National Center for Research
in Vocational Education
The Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

Telephone: (614) 486-3655 or (800) 848-4815
Cable: CTVOCEDOSU/Columbus, Ohio
Telex: 8104821894

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FOREWORD

Vocational education throughout its history has attempted to serve both the education and training needs of the individual and the skilled labor needs of the economy. At present the nation faces two major challenges relative to both these functions: the "rising tide of mediocrity," noted by the National Commission on Excellence in Education in its 1983 publication *A Nation at Risk*, and found to be eroding the educational foundations of our society, and the economic threat posed by the increased competitiveness of foreign products in both domestic and international markets.

Vocational education will be called upon to play more than one role in responding to these challenges, and there is likely to be considerable discussion and debate as to what its most appropriate roles should be. The evidence and viewpoints presented in this volume are offered to help to define the issues and summarize the evidence for this discussion. The volume is intended to be of primary use to policymakers, scholars and others interested in educational policy.

This volume was compiled and edited by Morgan V. Lewis and Frank C. Pratzner from the final reports of separate projects conducted at the National Center with support from the Office of Vocational and Adult Education, U.S. Department of Education. In this task the editors were assisted greatly by the word processing skills of Sherri Trayser and Priscilla Ciulla and the editorial skills of Judy Sechler. Preparation of this document and the conduct of all the projects on which it draws took place in the Evaluation and Policy Division under the direction of N. L. McCaslin, Associate Director.

On behalf of the National Center for Research in Vocational Education, I wish to express our appreciation to these individuals, and to the many others who contributed to the original projects. It is the hope of all involved that the assembled material will contribute to a more informed discussion of what vocational education can and should accomplish.

Robert E. Taylor
Executive Director
National Center for Research
in Vocational Education

EXECUTIVE SUMMARY

Why does vocational education continue to evoke so much debate among educators and researchers? Disagreement about the functions and performance of vocational education is less evident in the general public, among employers, state legislators, or even school board members,* but educators and researchers continually examine the appropriateness and effectiveness of vocational education. Much of this controversy seems to arise from the dual objectives that vocational education tries to achieve: (1) to facilitate the maximum development of the individual, and (2) to prepare the productive labor force needed by our society. These two objectives become controversial when the attempt is made to achieve them at the high school level. Few argue against occupational preparation at the postsecondary level, and almost no one thinks it inappropriate at the postgraduate or professional school level. At the secondary level, however, there is a concern that occupational preparation may be premature and may act to foreclose other options.

The four chapters in this volume examine from a variety of perspectives what vocational education should accomplish and is accomplishing. These chapters were not intended to reflect a consistent view. They were drawn from the reports of separate research efforts conducted at the National Center for Research in Vocational Education and are assembled here to summarize in one place some of the current thinking and evidence about what vocational education should be and is doing. They reflect most of the major, current viewpoints on the capabilities and performance of vocational education.

In the first chapter, Rupert Evans examines the discrepancy between the public and legislative support for vocational education and the benefits demonstrated by evaluation studies. Evans discusses some of the possible explanations for this discrepancy and proposes a research agenda and policy implications that are suggested by the discrepancy.

Chapter 2, by Frank Pratzner and Jill Russell, examines the appropriate roles and functions of secondary and postsecondary vocational education. Here the major issue is whether occupationally specific training should be emphasized at the secondary school level. The many economic problems that our country faces at present argue for skill training—if such training would reduce structural unemployment and increase the productivity of the work force. The arguments against such specialization stress avoiding premature occupational choice, training for change and versatility, and using vocational education to provide educational alternatives and increased relevancy.

Floyd McKinney and Patricia Fornash, in chapter 3, draw upon background papers prepared by specialists in six disciplines to assess the support that the basic theories and findings of these disciplines provide for eighteen selected outcomes, or intended, positive consequences, of participation in vocational education.** The specialists represented the fields of history, philosophy, psychology, sociology, economics, and futures research. The eighteen outcomes they were asked to

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*In chapter 1 Rupert Evans summarizes some of this evidence.

**An outcome may be intended or unintended, positive or negative, short-term or long-term. The outcomes discussed in this volume are for the most part intended, positive consequences that vocational programs are designed to produce.

examine were derived from a list of 252 outcome questions about vocational education that had been identified through previous research.

In the final chapter, Morgan Lewis focuses on a limited number of labor market outcomes of secondary-level vocational education that have been studied by different researchers in recent years. Several of the individuals who conducted the original studies participated in a convening during which conclusions were drafted. The chapter presents the conclusions that these individuals agreed can be supported by the separate studies.

The following sections provide detailed summaries of the major points from each of the chapters.

Outcomes and Acceptance

Chapter 1 examines the discrepancy between the measured outcomes of vocational education and public acceptance of vocational education. The outcomes that have been measured show modest effects for some people in some programs. Almost every measure of public attitudes and behaviors, however, shows strong support for vocational education.

This chapter grew out of small group discussions at the National Center for Research in Vocational Education that were convened to consider labor market-related and education-related effects of vocational education. The chapter explores possible reasons for the discrepancy and draws the following five conclusions:

First, there are six types of outcomes for vocational education:

- Labor market-related outcomes for individuals
- Labor market-related outcomes for institutions
- Labor market-related outcomes for society
- Education-related outcomes for individuals
- Education-related outcomes for institutions
- Education-related outcomes for society

Second, research on the effects of vocational education usually looks at only one or two types of these outcomes. It usually concludes that the benefits of the outcomes studied are small. It seems likely, however, that the public considers all six and calculates a rough sum of benefits. This leads it to conclude that it desires more vocational education.

Third, in 1963, Congress moved vocational education away from an emphasis on specified subject matter toward an emphasis on labor market-related outcomes for individuals (e.g., earnings) and institutions (e.g., employer satisfaction with training received by former students). This shift resulted in vastly increased vocational education enrollment and the expansion of vocational programs in a variety of institutions. Today, 78 percent of high school graduates have taken at least one vocational course, and even college preparatory students average more than two such courses.

In 1976, Congress specified that enrollment be abandoned as the principal criterion for distribution of vocational education funds. Instead, states were told to channel funds to schools and communities that had the least resources and the largest numbers of poor individuals. These criteria were not generally put into effect until the later 1970s. This change (and a long list of specified processes) has added new emphasis to societal, labor market-related outcomes. However, the measured outcomes of most research continue to deal primarily with individual labor market and education-related outcomes.

Fourth, we need a research agenda that addresses (a) the relationships among processes and outcomes, (b) long-term problems of national significance, as well as (c) the immediate problems that trouble administrators and other policymakers. The latter now receives the most attention.

Fifth, as long as the Congress not only emphasizes funding and other processes that stress one type of outcome, but also demands that different outcomes be assessed, the assessments are likely to be misleading. The public's assessment of all of the outcomes of vocational education and its perceived summation of benefits may well be more accurate in the long run than the limited assessments conducted to date by researchers.

Roles and Functions

Chapter 2 examines information from a broad base of literature and research and from three Delphi surveys of the views and opinions of small, highly select groups of knowledgeable educational leaders. The intent is to highlight a number of key issues and arguments related to the appropriate roles and functions of public vocational education. The chapter concludes that, the dominant effect of the economic conditions, technological changes, and demographic shifts facing the nation has been to move vocational education toward greater emphasis on the development of specialized skills. Vocational educators are urged to expand specialized skill training in high-technology areas, to play a vital role in state and local economic recovery plans, and to be aggressive in seeking ways to increase the involvement and cooperation of business and industry in their programs.

At the same time, there seems to be a growing consensus among an increasing number of knowledgeable people that the economic, technological, demographic, and educational conditions in the nation require secondary and postsecondary-level vocational programs to serve different roles and functions. The consensus among this group, though by no means clear and widely articulated, seems to be that vocational education at the secondary level should be integrated better with general education, and that emphasis should be on the development of broadly applicable skills useful to students in a wide range of future occupations. This group believes that, while the focus should be on strengthening vocational education's contributions to general education, preparation in broad occupational areas should be available to secondary students who choose it and can benefit from it.

At the postsecondary level, the dominant theme seems to be that vocational programs should expand their capacity to serve a broader clientele and a broader range of training needs. By and large, postsecondary institutions are being urged to work more closely with business and industry to emphasize and improve programs for highly specialized skill development, especially those needed in new and emerging occupations in the service sector and in high-technology areas.

It is highly probable that these issues and distinctions will continue to be at the heart of dialogue and debates about the roles and functions of vocational education throughout the 1980s. This chapter, in the hope that it will help to stimulate and contribute constructively to that dialogue, raises a number of policy implications and questions and identifies several areas of needed research.

Some Policy Implications

If vocational education is to strengthen significantly its technical skill development capacity, a number of policy implications seem evident. For example:

- Substantial federal and state vocational funds must be earmarked for updating and modernizing vocational education equipment and facilities at both secondary and postsecondary levels in order to reflect adequately technological and occupational changes in the labor market.

- Federal legislation should target funds for specialized skill training to those most in need, that is, to displaced and unemployed adult workers and to poor, disadvantaged youth.

- Federal and state vocational legislation must also emphasize and provide funds to supplement salaries for vocational faculty in new and emerging occupational areas in order to make their jobs more competitive with those available in business and industry. Additionally, funds should be earmarked to support a variety of approaches for updating and retraining vocational faculty in new technological developments and occupational changes in their fields of expertise.

- Federal vocational legislation should include provisions requiring close and significant cooperation and involvement of vocational education in state and local economic recovery plans. Included in these provisions should be requirements for demonstrating that vocational education programs are responsive to national, state, and local labor market demands—especially in areas of critical skill shortages. Programs should also demonstrate that they are sensitive to the other sources in their areas that supply trained workers.

- Federal and state vocational legislation should encourage even greater collaboration and involvement than it now does of business, industry, and labor in all aspects of vocational education programs.

If, on the other hand, vocational education is to strengthen its educational role significantly at the secondary level and is to seek to improve the educational achievement of students, then a very different set of policy implications will follow. At a minimum:

- Federal legislation should more clearly define and distinguish the principal roles and functions of vocational education at the secondary and postsecondary levels, and funding provisions should reflect these key differences.

- Federal and state vocational legislation must emphasize and provide funds to upgrade and retrain vocational faculty in the latest techniques and approaches for teaching a broad range of fundamental skills.

- The evaluation criteria in the current federal vocational law must be revised; instead of measures of training-related placement and employer satisfaction, alternative measures of educational achievement will be needed as success criteria.

- Federal vocational legislation should include provisions and earmark funds for secondary and postsecondary institutions in order to establish joint, collaborative arrangements whereby postsecondary institutions can provide preparation in specific job skills for secondary-level students who choose to pursue job training and can benefit from it.

- Federal and state vocational legislation should encourage and provide funds for a broad range of research, development, and dissemination that focuses on new and innovative techniques for improving educational skill achievement in vocational education programs. Activities should also be funded to develop more effective methods and techniques for measuring the educational achievement and outcomes of vocational education.

Some Questions

Among the several key questions noted in the conclusions of the chapter are the following:

- What should be the optimum role and function of each of the major programs or agencies engaged in job preparation? What changes will be required in current programs if these roles and functions are pursued?

- How does the optimum role and function of each agency or program influence which problems of national importance and priority will be addressed and how they will be addressed?

- To what extent should these various job preparation agencies and programs be coordinated and articulated? How can greater articulation be achieved?

- What should be the role of business, industry, and labor in public vocational education, and in particular, what should be their role in public secondary-level vocational education?

- How can public vocational education better measure and demonstrate its labor market effects and its educational effects?

Some Areas in Need of Research

Each of the questions noted above has a research agenda implicit within it. Two additional areas of needed research and policy analysis are described in the chapter. These two areas—the educational effects of vocational education, and the articulation and coordination of public secondary and postsecondary vocational education—are singled out because they are areas in which little research has been done to date and because they are areas important to the future of vocational education, regardless of whether one believes vocational education should put primary emphasis on labor market or educational outcomes.

Selected Outcomes

A multitude of outcomes for vocational education have been identified in the literature and by various publics. The goal of the study reported in chapter 3 was to produce information that could be used in determining the theoretical and empirical support that various disciplines provided for selected outcomes expected of vocational education.

From a list of 252 outcome questions, the project staff, selected personnel of the National Center for Research in Vocational Education, and selected vocational educators from around the nation identified eighteen outcomes on the basis of their (1) historic importance; (2) contribution to the unique attributes of the individual; (3) contribution to the improvement of social relationships among individuals; (4) contribution to the production, development, and management of material wealth for the individual, business/industry, or country; and (5) likely importance in the future.

Six individuals selected for their expertise in the fields of history, philosophy, psychology, sociology, economics, and futures research were commissioned to write papers that presented the fundamental theories, concepts, and major findings that could be used to support or reject each of the eighteen outcomes. The commissioned papers were reviewed by selected staff of the National Center and by a small group of invited participants in a working conference held with the authors of the papers.

Support for the Outcomes

On the basis of information presented in the six commissioned papers, the project staff members determined whether the evidence supported or rejected the eighteen outcomes. While so doing, they noted, that ordinarily additional information would be considered in identifying outcomes for specific programs operating in specific contexts.

The evidence presented in the six papers was seen as supporting the appropriateness and legitimacy of the following three outcomes of secondary- and postsecondary-level vocational education.

- Upgraded occupational competencies
- Acquisition of useful occupational skills
- Retrained workers

On the basis of evidence presented in the papers, the following outcome for vocational education is supported when measured at the conclusion of the individual's vocational education program.

- Development of safe work habits and techniques

On the basis of evidence presented in the papers, the following outcome is supported for secondary and postsecondary vocational education when measured within six months after program completion and when vocational education completers are not compared with other workers. program completion and when vocational education completers are not compared with other workers.

- Satisfactoriness to employers

Four outcomes of vocational were *not strongly supported* based on the evidence presented in the papers.

- Increased job satisfaction
- Increased potential for entrepreneurship
- Increased awareness of need for basic academic skills
- Placement in job related to training

The following nine outcomes were *not supported* by evidence presented in the papers.

- Enhanced leadership capabilities
- Positive attitude toward work
- Motivation for educational and occupational achievement
- Trained workers for labor market needs
- Improved quality of work
- Enhanced job advancement
- Increased productivity
- Reduced dropout rate
- Increased earnings

Given the limited acceptable evidence presented in the papers, it was considered inappropriate to make judgments on the relevance of the eighteen outcomes for special needs groups.

Implications

Implications for vocational education policymakers were formulated on the basis of the evidence presented in this report. These implications are as follows:

- Federal and state legislators should identify a minimum number of outcomes to be expected of vocational education. It is unreasonable to hold any program accountable for a multitude of outcomes.
- Outcomes identified for a program should complement each other. In the past the achievement of certain outcomes resulted in less than desirable achievement on other outcomes.
- State and local agencies should have flexibility in selecting outcomes. Policymakers and decision makers at state and local levels have the best information and perspective to select outcomes congruent with the specific situations in which their programs operate.

- Local vocational educators, in cooperation with other local individuals, should identify the goals of their programs and specify a limited set of outcomes. A vocational education program cannot do all things for all people.

- Policymakers and decision makers at all levels need to give careful study and consideration to the problem of identifying outcomes based solely on traditional acceptance or on their assumed relevance to the latest political initiatives. Each vocational education program is unique in structure and in setting. The outcomes expected of a vocational education program should reflect its uniqueness.

- Policymakers and decision makers at federal and state levels should designate funds for inquiry concerning the development of a contemporary rationale for vocational education to serve as a basis for identifying program goals and outcomes.

Recent Research

Chapter 4 synthesizes the results of recent research on the labor market outcomes associated with participation in secondary-level vocational education. This chapter is based on ten studies conducted with national data and reported since passage of the 1976 amendments to the Vocational Education Act of 1963. Coauthors of eight of the ten reports of these studies participated in a convening that discussed the preparation of this summary statement.

Difficulties in Labor Market Outcome Assessment

Assessing the labor market outcomes associated with vocational education is an extremely complex problem. The major difficulty arises from the fact that students select the kind of education they pursue in high school. Thus, individual characteristics (e.g., sex, race, ability, motivation) are associated both with the choice of high school education and with experiences in the labor market. Some of these characteristics are known and can be measured, but others are measured poorly, or not at all. The extent to which these unmeasured characteristics independently influence educational choices and labor market outcomes remains undetermined. Until this issue is resolved, some uncertainty will remain in any estimates of the effects of high school vocational education.

Coupled with this self-selection of education is the great variability in secondary-level vocational programs. These programs include many different occupational areas and vary further in quality and extent of student participation. Finally, the period in which the data summarized in this paper were collected was the late 1960s and the 1970s. During this period, there were more new labor market entrants and more vocationally prepared graduates than in any other time in the nation's history. The large number of vocationally prepared graduates may have minimized any labor market advantage that their training may have conferred.

Recurring Results

Despite these analytic problems, certain recurring findings are reported in most studies. On the basis of these findings the following conclusions appear warranted:

- Vocational preparation in business and office courses reduces the amount of time that young women will be unemployed after they leave high school by about one to two weeks per year.

- Vocational preparation in business and office courses increases the average weekly earnings of young women after they leave high school by about $10 to $20 per week. Young men from trade and industry courses sometimes earn more, but this outcome usually results because they work more hours per week.

- About half of all females who receive vocational preparation in business and office skills and about half of all males who receive training in the trade and industry areas while in high school obtain jobs in which they use the skills they studied.

- Males who receive training while in high school in the trade and industry area are a little more likely than similar males without such training to obtain jobs classified as skilled trades. Females who received training in business and office skills are more likely than females without such training to obtain clerical jobs.

These conclusions are not about vocational education in general, but about the two areas that have the largest enrollments and for which the most adequate evidence is available. Lack of adequate evidence for the other areas precludes drawing any conclusions about their labor market effects. This statement should not be interpreted to mean that training in these areas has no labor market effect. Where the evidence is best, it suggests that high school vocational education does have a positive influence on some labor market outcomes.

Closing Remarks

Given the variety of viewpoints in this volume, it would be presumptuous to attempt any overarching conclusions that could be supported by the evidence presented in the separate chapters. There are too many conflicting viewpoints. The one theme that comes through clearly and consistently in each of the chapters is the diversity and complexity of the activities collectively referred to as "vocational education." This complexity and diversity generates the differing perspectives reflected in these chapters. It is easier to think, talk, and write about the field as an entity with some definable boundaries and internal consistency, but reality defies such simplification.

Vocational education, with all its diversity, could probably achieve any one of the eighteen outcomes discussed in chapter 3 if there were a clear consensus that the selected outcome was paramount. In the absence of such a consensus, policymakers and vocational educators must continually evaluate and balance their assessments of needs against available resources. This volume provides information that should be useful for this ongoing process.

CHAPTER 1

MEASURED OUTCOMES AND PUBLIC ACCEPTANCE

Rupert N. Evans

Introduction

There is a discrepancy between the measured outcomes of vocational education and public acceptance of vocational education: Why is there strong public and legislative support for vocational education when the results of evaluations are not so strong? The outcomes that have been measured show modest effects for some people in some programs. But almost every measure of public attitudes and behaviors shows strong support for vocational education. Perhaps the most convincing evidence is the fact that 78 percent of secondary school graduates now take at least one vocational education course (Campbell, Orth, and Seitz 1981). Even students who report they are in a college preparatory curriculum earn an average of two credits of vocational education while in high school.

The public expects education to provide access to better jobs for those who work hard and succeed in school. It expects vocational education in secondary and postsecondary schools to aid in this goal in a number of ways: (1) by providing vocational programs designed for youth who do not want a baccalaureate degree (although these programs are sometimes taken by youth who *do* want a baccalaureate degree), (2) by providing vocational courses for all youth who want them, and (3) by helping adults acquire skills that aid their careers. The public shows that it believes in vocational education by enrolling in record numbers and by maintaining vocational education while cutting back on other educational programs.

Employers want more productive workers. They believe that this goal requires basic education as well as education that provides both employability skills training and occupational skills training.

Congress and state legislatures generally accept the public's view and the employers' view of what vocational education should do. Congress adds a concern for the disadvantaged and handicapped, in part because it knows that those who do not work are a burden on society.

Professor Harry Broudy, a leading scholar of educational philosophy, makes the point that the public has a strong predisposition to welcome the *direct* connection between vocational education, regardless of its form, and the importance of work. Whether that education produces effects

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SOURCE: This chapter is based on the report, *Labor Force-related Outcomes, Education-related Outcomes and Public Acceptance of Vocational Education* published by the National Center for Research in Vocational Education (Evans 1982C).

that show up in research or even in common observation is not crucial. If a person has had training as a machinist, the fact that that person did not get a job or did not hold a job does not change the perception of the value of the training. By sharp contrast, any schooling taught for desirable general outcomes such as building character or attitudes or developing the ability to think critically is seen as having possible, but conjectural, *future* outcomes. The goals of the general education, even at the baccalaureate level, are generally applauded as valuable but postponable. The goals of vocational education and work are not postponable.

Legislators tend to accept the views of their constituents about vocational education. Officials in the executive branch of government are less willing to accept vocational education as being inherently desirable. Government never has enough money to meet the demands placed upon it. For the last two decades federal officials, especially in the U.S. Department of Labor, have increasingly demanded research evidence of vocational education's effectiveness, in part because they hope that the research will identify ineffective programs. Funding for such programs could then be eliminated, thus helping to solve budget problems. Legislative staffs want evidence of effectiveness in meeting the needs of the disadvantaged and handicapped.

As this evidence has accumulated, it has become clear that vocational education meets (reasonably well) its congressionally mandated evaluation criteria: (1) training-related placement (almost uniformly 50 to 80 percent) and (2) employer satisfaction (almost all are "satisfied" with vocational graduates). Nevertheless, the benefits shown by researchers tend to be marginal: Some types of programs (especially clerical and trade) for some groups of people (especially women) produce significant labor market effects. The research also says that even though employers prefer vocational graduates, they are willing to pay them only a little more and to retain them only a little longer than nonvocational graduates. In short, the benefits shown by researchers are relatively small, on the average (Lewis 1982a, 1982b).

The public, however, shows strong support of vocational education. As measured by local tax support and by attitude surveys, acceptance is high and has been increasing, particularly during the past two decades (the very period during which quantitative evaluations have been most prominent).

Enrollment trends similarly show increasing public support. Almost all vocational education comes after the end of compulsory schooling, and it is never a required subject. Enrollments increased slowly but steadily until 1963, when Congress ended its requirement that specified amounts be spent on specific vocational subjects. This led to the development of programs that had greater labor market relevance. Consequently, enrollment has increased more rapidly, and now more than three-fourths of public high school students take one or more vocational courses, and more than half of the students in one- or two-year public postsecondary schools enroll in vocational education.

Congress also has supported vocational education, and local and state taxing authorities have been even more supportive. Every increase in federal funding has been accompanied by even larger local and state increases.

Discrepancies are of interest to scholars, who find that anomalies are a fruitful source of important research questions. This particular discrepancy—between the strong public and legislative support for vocational education and the results of evaluations—appears to have important policy implications as well. Learning more about it may help to explain why executive branch support for federal funding of vocational education has been almost nonexistent since the time of President Hoover, whereas congressional support during this same period rarely wavered. Year after year, the administration proposes that funds for vocational education be cut, but Congress

responds by maintaining or increasing the funds. This paper examines some of the possible explanations for this discrepancy* and suggests some actions that should be taken to resolve it.

Labor Market-related and Education-related Outcomes

Research on the effectiveness of vocational education has emphasized two types of outcomes: labor market-related outcomes and education-related outcomes. Labor market-related outcomes include annual earnings, labor force participation rates, and frequency and duration of unemployment. They also include perceptions (held by former trainees, employers, parents, and other interested parties) of the value of vocational education for labor market uses. In addition to surveys that indicate those perceptions, it is useful to look at actual behavior, such as (1) purchase of training services from schools and provision of services and equipment to schools, (2) participation on advisory committees, (3) solicitation of information about students before employment, and (4) analysis of new hires to see which training systems supply them.

Education-related outcomes include changes in school dropout and attendance rates, in verbal and computational skills, in types of reading done, and in participation in further education and training programs. They also include perceptions of the value of vocational and nonvocational education by trainees and other key groups, as well as perceptions of participation in educational activities by the community. The principal crossover between these two types of outcomes occurs when we attempt to assess the extent to which the titles of the jobs in which former vocational education students are placed correspond to the names of the vocational courses or programs in which they were previously enrolled.

In September 1982 the National Center for Research in Vocational Education brought together two small groups of experts to examine those outcomes of vocational education that are related to the labor market and those that are related to education. Precompletion and postcompletion outcomes were examined.** There was general agreement that the purposes of vocational programs and the quality of the programs vary widely from state to state and from locality to locality. Therefore, it is not surprising that, on average, almost all of the data on all of the outcomes are no more than mildly positive. Even in the cases in which the outcomes are not positive, there usually are logical explanations of why this finding appears. For example, although the labor force participation rate and earnings of former home economics students are lower than for comparable nonvocational students, a plausible explanation is that many of these students are preparing for work as homemakers, and society does not pay homemakers or count them as part of the labor force. It is clear, also, that there is inadequate attention to the role of home economics in support of productivity in the paid work force. Too little is known about the important roles of consumer and homemaking education in enhancing home and family life and in educating consumers who affect the labor market by seeking reasonably priced products of high quality that can best be produced by trained workers.

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*A detailed list of explanations appears in appendix A to this chapter.

**See appendix B for a list of outcomes.

These conclusions were not particularly startling. Almost every recent evaluation of vocational education has produced similar results. What was new is the convened experts' recognition that almost all of the evaluations concentrated on the effects of vocational education on individuals, while neglecting its effects on institutions and society.

Based on this discussion, it seems clear that a reformulated statement of the relationship among outcomes is needed. Table 1-1 shows a possible reformulation.

TABLE 1-1

RELATIONSHIPS AMONG OUTCOMES OF VOCATIONAL EDUCATION

	Labor Market-related Outcomes	Education-related Outcomes
Individual Outcomes	A (e.g., earnings)	B (e.g., graduation)
Institutional Outcomes	C (e.g., employer satisfaction)	D (e.g., relevant instruction)
Societal Outcomes	E (e.g., economic development	F (e.g., equal access)

Almost all of the attention of researchers and evaluators has centered on cell A (individual, labor market-related outcomes) of table 1-1. Even this cell has not been explored fully; until the early 1960s, the use of funds for most types of retraining of employees for new careers was not authorized by federal vocational education statutes. During the same period, because almost all evaluations of trade and industrial education counted any enrollment of its graduates in postsecondary education as a failure of the system, cell B (individual, education-related outcomes) received little attention. The affective domain received less attention than the cognitive or psychomotor domains (Dunn, Ridley, and Walker n.d.).

Current legislation clearly emphasizes individual, labor market-related outcomes; for example, entry-level vocational education is to be evaluated by "the extent to which program completers and leavers—(i) find employment in occupations related to their training, and (ii) are considered by their employers to be well-trained and prepared for employment" (P.L. 94-482, 20 U.S.C. 2312, 1976). However, the law also specifies that pursuit of further education and training cannot be considered negatively in such an evaluation. This is not a positive endorsement of an education-related outcome, but it is a step in that direction.

Although cells C (institutional, labor market-related outcomes) and D (institutional, education-related outcomes) have been little studied, it is worth noting that the 1976 amendments support involvement of vocational schools in job placement, which could be considered a step toward emphasizing labor market institutional outcomes. The amendments also continue support for area vocational schools, which have served in many states as the nucleus for the formation of new educational institutions that provide a wide variety of regional educational services.

Cells E (societal, labor market-related outcomes) and F (societal, education-related outcomes) have received even less attention. When individuals and institutions profit from vocational education, society also profits indirectly because individuals and institutions are a part of it. But society as a whole may profit directly through a reduction of its costs for correctional, medical, remedial, unemployment, welfare, and other social service programs. Presumably, Congress has societal goals in mind when it demands greater attention to sex equity and to programs for the disadvantaged and the handicapped.

We know very little about the types and amounts of societal outcomes of vocational education, whether they are labor market related or education related. However, it appears that some institutional and societal effects may be far reaching. For example, New York City has restructured some of its academic high schools to fit the successful model of its vocational high schools—including student choice of schools, selective admission of students, and attention to building staff and student *esprit de corps* (Perlmutter 1982). Trade associations and major corporations are linking with selected postsecondary technical programs to create new ways of training employees. States are restructuring vocational training as a way of helping to attract and keep businesses. Vocational education and occupational education in general are seen increasingly as a way to decrease the cost of other social programs.

Relationships between Labor Market and Educational Outcomes

Labor market-related outcomes are the long-range, ultimate outcomes desired of vocational education. They are the outcomes that distinguish vocational education from other education. But in the short run, labor market-related outcomes are inherently unstable. Overnight changes in government policy or in the plans of a local employer can destroy opportunities for employment. Thus, a vocational program that consistently has had high placement rates at high wages can be turned overnight into a program that has poor labor market-related outcomes.

If a program is evaluated in terms of outcomes over which it has no control, this action is not only unfair, but it is also likely to lead to a rejection of the results of the evaluation, rather than toward program improvement (which is what we seek with most evaluations). For these reasons, most vocational educators ask to be evaluated in terms of the extent to which they have developed "employability" rather than "employment." Employability is an educational outcome, though it necessarily has some relationship to potential labor markets. Employability is synonymous with employment when the level of unemployment is normal; but when unemployment is high, even well-trained, fully employable workers may not find employment. Conversely, persons who receive poor or no training may nevertheless find employment if labor is in short supply.

Instead of seeking program improvement, of course, we could use evaluations as a means of program termination. Suppose that all programs were terminated as soon as their placement rates dropped below a certain level. The most likely reason for a sudden drop in placement rates is a local recession. Because it is less expensive (in terms of foregone earnings and increased availabil-

ity of instructors) to provide job training during a recession than during a boom, program termination based on placement rates could occur during the wrong part of the economic cycle.

Many (perhaps most) education-related outcomes should be precursors of labor market-related outcomes. We know that if education-related outcomes are not tested periodically against the labor market, they can become obsolete. Educational history is replete with examples of school subjects that were instituted because of their relevance to the labor market and then continued in the curriculum long after that relevance had disappeared.

We should use education-related outcomes as the daily and yearly test of the worth of vocational education, but we should also use a multiyear, moving average of labor market-related outcomes to test the worth of those education-related outcomes that are relevant to the labor market.

There is a group of little-understood economic outcomes of vocational education that is not directly labor market related. If a person learns in vocational education how to repair a personal automobile or identify a well-constructed house or choose medical care wisely, the economic consequences may be substantial even if the vocational education does not result in a job that uses these skills.

Evaluation of Multiple Outcomes

Every program has intended and unintended outcomes. Both should be evaluated, but it is easier to identify (and to evaluate) the intended outcomes.

Each vocational program has multiple goals and, hence, has multiple intended outcomes. These goals are not the same in all vocational programs. For example, the goals of agricultural programs tend to be different from those in trade and industrial education. The goals of programs in grades eight and nine are designed to prevent school dropouts (e.g., work experience and work-study programs) tend to be different from the goals of those programs in grades ten through fourteen which are designed to provide skill development for youth. And both of these goal sets tend to be different from the goals of programs designed to attract employers to the region. Nevertheless, we tend to use a narrow cluster of labor market-related, individual outcomes to evaluate every vocational program.

We know that programs tend to become more specific at each higher level of education. We also know that programs tend to achieve the outcomes that they emphasize. For example, programs that emphasize job placement are more likely to get job placements than those that do not emphasize it (McKinney et al. 1981). If programs are designed to achieve too many different goals, they are likely to make little progress in achieving some or all of these goals.

Almost every program has multiple goals, and progress toward each goal has costs. Therefore, it is desirable (though difficult) to take into account the costs of achieving each of the various goals. It is almost always easier to measure costs rather than benefits. Most—if not all—of the cost-benefit studies of vocational education charge total program costs against one or two goals. This practice makes achievement of favorable cost-benefit ratios unnecessarily difficult. In effect, it assumes that the benefits of other, unmeasured goals are costless.

It seems likely that members of local and state boards of education, state economic development agencies, and the federal government differ somewhat in the goals they believe that vocational education should emphasize. For example, attracting employers from other states is a state

not a federal goal, and most states use state funds to pursue it. In other cases, funds provided by one branch or level of government are used to achieve the goals set by another branch or level.

The division of responsibility for goals, processes, and costs is not clear. Who should decide whether a system of schools should be restructured? The federal government often plays a decisive role in such determinations (e.g., by providing funds for area vocational schools). A state may mandate nonduplication of courses in its postsecondary schools, but then refuse to provide housing for students who want to enroll in programs that are not available near their homes. Who should allocate the costs among the various goals of vocational education? This responsibility is not clear, either.

A Research Agenda

Federal research on vocational education has increasingly employed short-term projects designed to help federal administrators solve their immediate problems (Evans 1982a). These short-range studies should be accompanied by a research agenda that attacks pervasive, long-range problems of consequence to the whole field. Such an agenda is suggested in the following text.

1. It seems clear that we need to know much more about how to assess programs that seek multiple outcomes. How do these goals interact? How can we decide when we have too few goals (and hence have too narrow a program) or too many goals (which brings a risk of not achieving any of them)? If we enter a period of intense national competition (e.g., a trade war or a shooting war), should we seek to restrict vocational education to a goal of training-related placement? How can we best sum up the benefits of outcomes that are intercorrelated?

2. How do labor market-related outcomes interact with education-related outcomes? How should they interact? How can we avoid the problems caused by the inherent instability of the former without being trapped by the tendency toward rigidity of the latter?

3. Most evaluation of education is process oriented. This practice has been rightly criticized, because "approved" processes may not yield desirable outcomes. However, as this chapter suggests, the evaluation of outcomes also leaves much to be desired. How can each of these types of evaluation be improved?

4. Vocational educators frequently state that their programs *prevent* problems, whereas employment and training programs are *remedial*; but this statement is virtually untested. Does vocational education decrease the probability of needing the training conducted under the Job Training Partnership Act (JTPA), or of needing unemployment, welfare, and similar payments? Vocational programs in correctional institutions are often promoted as a way of decreasing recidivism. Do they help? In short, what are the social outcomes of vocational education, and how valuable are they?

5. In this country there are seven major systems of occupational education: (1) military technical training, (2) JTPA programs (formerly CETA), (3) apprenticeship training, (4) private training in business and industry, (5) universities, (6) public secondary and postsecondary school vocational education, and (7) independent (private) occupational schools. They all use a combination of on-the-job training and classroom/laboratory instruction. Which combination of training agencies and training methods is best for which outcomes for which types of students?

6. How can we incorporate process variables into a more effective system of evaluating vocational education? Almost inevitably, an outcome evaluation shows that most outcomes are at less than desired levels. The next question, in a formative evaluation, usually is, "What can we do to improve these outcomes?" This is another way of saying, "What processes need to be changed in order to improve the quality of this program?" For example, suppose that the job turnover rate of vocational graduates (a labor market-related outcome) is too high. The rate may be high because attitudes toward work (an education-related outcome) are poor. We know that poor attitudes toward work can be caused by (a) selection of students who have poor work values, (b) placement (in a cooperative education program) alongside workers who have poor attitudes toward work, and (c) exposure to a vocational teacher who has poor attitudes toward work. It is more useful to know which processes should be changed than to know that the outcome is low. Why not evaluate programs by using those process variables that are known to affect outcomes, especially if they are less expensive to assess than are outcome variables?

7. Vocational education is almost certainly subject to the law of diminishing returns. Since the proportion of the population that is taking vocational education courses has been going up, we might expect that the returns to each successive increment of investment in vocational education would decline. However, other conditions are not constant. The proportion of secondary school students who take vocational education programs (the "concentrators") has remained nearly static. Most of the increase has been among students who take one, two, or three courses and who, hence, spend much less time in vocational education. This trend affects the supply of graduates of the general curriculum by changing their number and the content of what they study. It may also raise their wages.

   As the proportion of high school graduates who have had vocational education course work continues to increase, it is less and less defensible to use the general curriculum graduates as the comparison group against which vocational education is judged. The proportion of high school dropouts is static, and the proportion of GED diploma holders is increasing rapidly. Neither of these groups has significant amounts of vocational education, but members of both groups have personal characteristics similar to those of vocational students. In spite of the fact that they may have a lower motivation to remain in school, they would appear to be more appropriate groups against which to compare vocational education students.

8. Because costs per student are roughly proportional to time spent in vocational education, the cost per student is lower for nonvocational students. What has been and is likely to be the return per hour (or dollar spent) in vocational education? To what extent is the rate of return changed if we spend fewer hours per individual in vocational education or if we enroll a greater proportion of the population in vocational education? Costs are probably lower per hour spent in vocational youth club activities than for time spent in class or on the job. How does the presence of youth club activities affect costs and returns? If returns to vocational education really are declining as the enrollments go up, why do the enrollments not stabilize or even decline?

9. One goal of vocational education is to help people to improve working conditions. For example, a person who has had vocational education should be better able to recognize an unsafe condition and know what to do about it. What processes and outcomes are affected by this goal?

10. Vocational educators are frequently urged to increase the quality of their programs. Sometimes this is encouragement to change the degree of certain outcomes (e.g., by

decreasing the length of time required to find employment). In other cases it suggests changing certain processes (e.g., by eliminating the teaching of incorrect occupational procedures). Often, however, the question of what constitutes "improved quality" is not clear, nor is it clear how "improved quality" can best be achieved. For example, is it true, as Evans (1979) contends, that the value added by vocational education is less when it is taught to the average student than when it is taught to those who are well above or below average in ability? If improvement of quality of processes is desired, which outcomes are affected by which changes in process?

11. A key issue in vocational education relates to sex stereotyping. Does vocational education enroll more or fewer atypical students in any of its occupational programs than are securing entry-level employment in these same occupations? In other words, is sex stereotyping in vocational education leading or lagging behind sex stereotyping in employment?

12. Most of the evaluations of vocational education are based on averages. By their nature, averages include the very best and worst results and weight them equally. In contrast, individual studies of the very best and worst programs can provide important insights into what is and is not possible and what processes are associated with success and failure. More in-depth studies of individual programs are needed to provide these insights.

13. Many of the key policy issues of the future are likely to revolve around choices of processes and institutions (e.g., public versus private schools, secondary versus postsecondary schools, institutional versus on-the-job training, retraining versus entry-level training, training versus income transfer programs, categorical versus block grant programs, or certification for occupations versus laissez-faire entry into occupations). Which of these processes and institutions do what best and for whom?

Policy Considerations

Policies should be based on a set of values held by the policymakers and by those who placed them in a policymaking role. The policy recommendations stated here are based on assumptions that (a) vocational education is a part of education; (b) federal goals in vocational education should emphasize societal outcomes more than individual or institutional outcomes; (c) vocational education as a whole should emphasize a blend of individual, institutional, and societal outcomes that are labor market related and education related; (d) institutions tend to be rigid, and they are necessary but not sufficient to ensure many types of individual and societal outcomes; (e) education-related outcomes are necessary but not sufficient to ensure many types of labor market-related outcomes; and (f) a major goal of researchers should be to learn more about the reasons for discrepant perceptions of vocational education held by the public, employers, Congress, and the federal administration, so that these discrepancies may be reduced and policy may be formulated more effectively.

Policy-related Issues

1. Federal legislation for vocational education specifies that labor market-related outcomes must be produced for individuals (training-related placement) and for one institution (employer satisfaction). It does not demand educational outcomes of any type nor labor market-related outcomes for society.

Congress specifies processes (e.g., employment of sex equity coordinators, minimum expenditures on the disadvantaged and handicapped and on postsecondary education) that it hopes will affect labor market-related social outcomes. This emphasis on equity-related processes was accelerated in the early 1980s by federal reviews of state vocational education procedures. The Management Evaluation Review for Compliance and Quality (MERCQ) forced states to comply with legislation that reversed the emphasis on increased enrollment that had previously been in effect for fifteen years. In spite of its name, MERCQ concentrated much more on compliance than on quality. It forcefully reminded the states that the 1976 Educational Amendments require that (1) family or individual income and (2) financial strength of the training agency are the two most important factors to be used in determining the distribution of federal vocational funds by the state. Indeed, the law prohibited allocation of funds on the basis of enrollment, as well as the matching of local expenditures on a uniform basis [P.L. 94-482, 20 U.S.C. 2306, Sec. 106(a)(5)]. It seems clear that the Congress specified processes that are not in accord with the specified outcomes. Indeed, the processes may hamper achievement of the specified outcomes.

By emphasizing some outcomes more than others, Congress strives to move vocational education in the directions it sees as desirable. But the unintended effect may be to move vocational education away from outcomes that all would agree are desirable. We now have research evidence that confirms the conventional wisdom that you get what you emphasize. An example is that added emphasis on employer satisfaction may decrease preparation for entrepreneurship. Another example is that emphasis on training-related placement may decrease earnings (because people are willing to take less pay in order to get a job in a field for which they feel prepared).

How should we decide which outcomes should be emphasized? Congress will not appropriate funds for programs that have no specified outcomes. Perhaps, it would be wiser to encourage states to plan programs for which the expected outcomes are specified clearly, with emphasis on one or more of the cells in figure 1, and then to insist on data on achievement of these outcomes.

If it continues to be necessary for Congress to specify vocational education outcomes, it might be wise to emphasize social outcomes, even at the expense of certain individual or institutional outcomes. Certainly social outcomes should be the highest priority of the federal government because the welfare of society as a whole is its principal responsibility. If it continues to specify processes, then these processes should be in accord with the specified outcomes.

2. From the early 1960s to the late 1970s, federal rules for vocational education tended to increase the number of people served. This emphasis has been quite successful, but in some cases it appears to have been achieved at some sacrifice of quality. The declining population of young people makes this an ideal time to move vocational education from an emphasis on quantity to quality, while maintaining the recent emphasis on equity. In the next decade, secondary school enrollments will decline by about 25 percent (assuming continuation of trends in the school dropout rate and no major immigration of teenagers). In some schools, enrollment will decrease by 50 percent. Postsecondary enrollments will stabilize or perhaps drop somewhat. Many vocational classes will close. We know that at present the most important factor in deciding to close a vocational class is low enrollment (Franchak 1983). Should we continue to let student enrollment determine which classes will be closed?

Declining enrollment will affect all secondary education, of course, not just vocational programs. As secondary school teachers worry more and more about their jobs, they become more likely to track students into their classes. Because academic teachers have more influence on determining which courses are mandated than do vocational teachers, tracking into academic subjects may become a greater concern than tracking into vocational education. Secondary-level area vocational schools especially are likely to suffer, as home schools refuse to send their students away.

3. The decline in the number of students in the age range traditionally served by vocational education could be accommodated by reductions in the number of vocational teachers and the variety of vocational programs offered in each school. Or, they could be offset by increases in the number of older workers who need retraining. What kinds of adjustments are needed in schedules, curriculum, and instructional methods to serve these older workers? Should federal policy attempt to move vocational education toward serving more adult workers?

4. As the economy returns to normal, there almost certainly will be increased immigration of young workers to compensate for the decreased number of births in the United States during the 1960s and 1970s. These immigrants need simultaneous instruction in English and in vocational education, conducted in English or in their native language. How can we prepare vocational instructors to fill this need? Similar shortages of young workers in Germany and Japan have led to demands there for improved quality of vocational education and to investments in labor-saving equipment that have, in turn, led to a greater demand for retraining of older workers and to a need for upgrading the equipment used in vocational instruction.

5. Increased productivity of manufacturing in other countries has led to increased international trade competition and indirectly to a further shift in this country from manufacturing to service activities. Vocational education traditionally has emphasized preparation for the production of goods, while paying little attention to the much larger service sector. How can vocational education best be moved toward more emphasis on the expanding service sector?

6. It is well known that rural and inner-city schools have special costs associated with population dispersion and concentration. Many states take these expenses into account in formulas for the distribution of general school funds to local schools. Should not federal reimbursement for vocational education programs take these factors into account, both at the state and the local level?

Policy Recommendations

1. Legislation should not specify vocational education processes unless the legislators are reasonably sure that each process specified is necessary for the achievement of a desired outcome.

2. Federal legislation should emphasize outcomes that affect society as a whole, such as equity and productivity, rather than individual or institutional outcomes.

3. From 1963 to 1976, federal incentives favored increased enrollment in vocational education. These incentives have achieved considerable success. From 1976 to the present,

incentives have favored the least wealthy schools and communities, regardless of enrollment or quality of program. Future incentives should favor—

- increased quality in vocational education programs,
- vocational education of immigrants brought in to meet the projected shortage of young workers, and
- increased emphasis on vocational education for employment in the service sector and other occupational areas that appear to be expanding.

4. Federal and state funds should be distributed according to a formula that takes into account sparsity and density factors, in order to aid rural and urban schools.

5. The bulk of the federal research agenda should be defined as the study of long-term problems of national significance, rather than the study of immediate problems that trouble administrators of national offices. The key issue is how to reduce the enormous range in the quality of vocational education, both by eliminating the poorest programs and by improving (or replicating) the better programs.

APPENDIX A

POSSIBLE REASONS FOR PUBLIC SUPPORT IN THE FACE OF LACK OF RESEARCH SUPPORT

1. "Vocational education has a superb lobby, and lobbies work better with the legislative than the executive branch of government." This statement is probably true; but it does not seem to explain strong local-level funding, increases in enrollment, or public attitudes toward vocational education.

2. "There is a general trend toward a vocational emphasis at all levels of education, and vocational education is a beneficiary of this trend." This statement is probably true; but it does not explain the strong support of vocational education during the post-Sputnik era, when the study of technology and technological applications almost disappeared from the teaching of science and mathematics because they were seen as hindering the development of high-level professionals.

3. "Evaluators are using the wrong methods." This condition seems to exist less today than it did during the 1960s, when most evaluators were not taking into account the fact that vocational education enrolls students who have lower verbal ability and lower socioeconomic status than students in other curricula. Some evaluators were counting each vocational graduate who continued schooling as a failure of the vocational program.

4. "The data being used by evaluators are faulty." This condition probably was a major factor at one time, but it is less so, now. When asked to categorize the type of curriculum in which individuals were enrolled, schools and students often disagree. Today, the better studies look at transcripts to see what subjects students took, but they also need to continue to look at students' self-reports. Longitudinal data have helped greatly, but more extensive data designed to answer vocational education questions are needed.

5. "The public and legislators are more impressed with testimony from disinterested parties, with case studies, and with individual successes of which they are aware than they are with statistics." This assessment may well be true; but if so, it may be good. Few researchers would claim that the results of their studies are the only type of evidence that should be considered. In any case, not much can be done about it.

6. "Evaluators are not evaluating the right outcomes." Certainly social outcomes (e.g., less crime, lower welfare costs) should be considered, in addition to the usual labor market-related and education-related outcomes. Data from certain CETA training programs have indicated favorable social outcomes. Because vocational education and its students are certain to continue to have complex goals, evaluators will probably continue to have difficulty in measuring some of the outcomes and weighting them in relationship to these goals.

APPENDIX B

TENTATIVE LIST OF OUTCOMES AND CONDITIONS ASSOCIATED WITH VOCATIONAL EDUCATION*

Labor Market-related Outcomes

Individual

Employment during training

- Cooperative education, work-study, self-obtained
- Types of jobs, amount of pay, hours of work, etc.

Unemployment during training—frequency, duration

- Reasons for nonparticipation in the labor force

Relationship between type of training and type of employment

- Trainee's perception of relationship of job to training
- Analysis of relationship of training elements and job elements

Employment after training—hours worked per year

Earnings—hourly and annual

Labor force participation rate in socially approved work

Job satisfaction

Occupational mobility

Expectations about future earnings, job security, etc.

Expectations about career, promotions, life-style, socioeconomic status

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*Current rates and trends assessed prior to completion of training, and short- and long-term trends assessed postcompletion.

Institutional

Union, nonunion employment

Public, private sector employment

Employer satisfaction with graduates and school leavers

Societal

Number of times arrested

Occupational mobility

Perceptions (by prospective students, parents, school administrators, union officials, legislators, government administrators) of vocational education as a whole

Analysis of new hires to see which training systems supply them

Education-related Outcomes

Individual

Dropout rates, reasons for dropping out

School reenrollment rates

Frequency of shifts from one program to another. Reasons?

Number of school credits attempted and completed—secondary and postsecondary

Preenrollment and end-of-program scores on the following:

- Achievement tests (reading, practical computation, etc.)
- Career maturity tests
- Consumer and economic knowledge tests
- Creative awareness and activity tests
- Knowledge of the world-of-work tests
- Occupational proficiency tests
- Ability to work with people
- Types and amount of reading done
- Participation in school activities (type and amount)

- Proportion of school days absent or tardy
- Proportion of classes attended—vocational and nonvocational
- Grade point averages
- Attitudes toward school

Student satisfaction with training

Participation in further education and training

- Participation rates by type of program

Expectations about further education

Perceptions about previous education, counseling, etc.

Wishes about alternative types of education that might have been chosen

Ratings of adequacy of previous training

Completion rates for further education

Likelihood of attempting or completing GED tests

Length of time spent in preparing for GED tests

Institutional

Proportion of "concentrators," "explorers," etc.

Educational placement—by types of institutions and programs

Perceptions of current and former students toward the following:

- Previous general and vocational education
- Further general and vocational education
- Desirable amounts, types and level of education

Composition of advisory committees and reasons for participation?

- Rate of attendance at meetings

Those who donate services to vocational education.

- Amounts of and reasons for donating services

Those who provide short-term employment to vocational teachers to improve their skills. Why?

Those who donate equipment to vocational education. Why?

Those who solicit information (e.g., teacher recommendations, courses completed by students) from vocational education.

- Uses made of information.

Those who provide information to vocational education (e.g., notices of job vacancies)? Why?

Effects of vocational education leadership in competency-based instruction and teacher education

Effects of vocational education leadership on laboratory-based instruction

Societal

Barriers to participation in current and further education

Perceptions (by prospective students, parents, school administrators, union officials, legislators, government administrators of the following:

- Vocational education as a whole
- Vocational education in types of schools (e.g., area, technical, comprehensive, secondary, postsecondary)
- Vocational education in a particular school
- A particular vocational instructor
- A particular vocational class

Participation in civic activities (type and amount)

Participation in occupational associations (type and amount)

Participation in avocations (type and amount)

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CHAPTER 2

PERSPECTIVES ON THE ROLES AND FUNCTIONS OF VOCATIONAL EDUCATION

Frank C. Pratzner
Jill Frymier Russell

Economic conditions, technological changes, and demographic shifts all affect the nation's human resource development needs, how the nation goes about meeting those needs, and the role and contributions of vocational education to the enterprise. Some perspectives on the roles and potential responsiveness of public vocational education to meeting national needs and priorities were obtained through three small Delphi surveys. Respondents (nine per survey) were asked for their views and opinions about: (Delphi 1) the strengths and relative emphasis given to different skills by public secondary- and postsecondary-level vocational education, (Delphi 2) the strengths and relative emphasis given to different skills by the other key agencies and programs that provide job training, and (Delphi 3) the appropriate role of secondary- and postsecondary-level vocational education in addressing national needs and priorities.

The results of the three Delphis are summarized in appendix table 1. This table presents descriptive excerpts from the respondents' comments to highlight major comparisons and contrasts among the key agencies and programs that provide preparation for work. Although the survey respondents were carefully selected to include national opinion leaders and policymakers in vocational education, each of the surveys was limited to nine respondents. Therefore the results should be treated cautiously and not overemphasized. In the following section the Delphi results are presented in the context of a general discussion of the roles and functions of vocational education.

General Versus Specialized Skill Development

A key, unresolved issue in vocational education is the appropriate role of secondary-level vocational programs and whether they should give greater emphasis to more generally applicable skills or to more specialized job skills. Severe national problems arising out of declining economic development and productivity growth, and rapid, dramatic technological changes and occupational developments are affecting the nature and content of many jobs and the skills and training needs of workers.

Many believe that these changes promise to increase work specialization, with its attendant need for highly specialized skill development, and that this increase requires vocational education to emphasize the more immediate and pressing employment needs of individuals and society. Others believe that these economic conditions and technological changes require higher levels of

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basic skills and that the appropriate role of secondary-level vocational education is to emphasize development of basic and generally applicable skills.

Another set of equally severe problems grows out of the widespread belief that at a time when life and work are demanding even higher levels of skills in basic subject areas the public schools have not done an adequate job of providing such an education. This set of problems is reflected in long-term declines in scholastic aptitude test scores and in employer complaints about the lack of basic skills and abilities among new entrants to the labor market. The situation has resulted in a strong "back to basics" movement throughout the nation and in the adoption of minimum competency standards for graduation in many states. It is putting additional pressure on secondary-level vocational education to strengthen longer-range educational goals and to emphasize its role in improving the broad educational preparation and basic skills achievement of students.

Specialized Skills

Although there is no clear evidence as to the proportion of vocational educators who support the emphasis on specialized skill development at the secondary level, that proportion is probably substantial. Many feel our "underinvestment in human capital accounts for current woeful rates of productivity growth as much and perhaps more than our underinvestment in machine capital" (Carnevale 1981, p. 4). Like Carnevale, those who take this position feel that "if we want to increase economic returns from human capital investment, that investment must be more job specific" (ibid.). Vocational education, it is argued, should give primary emphasis to highly specialized skill development. The more these job-specific skills can be tied to particular employers' needs, pieces of equipment, or production processes and the more they can be emphasized in vocational education programs, the better.

There seems to be little question that this position has many supporters among vocational educators in an increasing number of states where "customized vocational training," "industry-oriented programs," and "made-for-industry training" have sprung up and are receiving considerable support and backing.* Moreover, Rosenfeld (1982) is alarmed by the few complaints expressed about the fundamental shift in purpose from education to training represented by the emergence of these types of programs.

General Skills

By contrast, there is a growing body of literature and research that suggests secondary-level vocational education should give greater emphasis to improved educational preparation and basic skills achievement. Those holding this view seem to feel that high school vocational education should emphasize educational objectives. Individual student growth and development should be the focus with the aim being to prepare youth for a lifetime of work in a dynamic economy where the only real certainty is the certainty of change itself. Those advocates believe that education is the end and that the primary purpose of secondary vocational education is "to promote full human development through exposure of the learner to work experience as part of the education process"

*See, for example, the analysis and description of statewide efforts in Mississippi, South Carolina, North Carolina, Oklahoma, Colorado, and Massachusetts provided by Stevens (1983a).

(Silberman 1982, p. 299). For example, as Silberman sees it, "the purpose of the work is to further the education of the student; the work is subordinate to the education process; it is work for education" (ibid.).

Among all the various education and training programs for work, secondary-school vocational education is felt to be unique in that "no other occupational training system seeks to enhance general education" (Evans 1982b, p. 267). As Walsh (1979) points out:

> Vocational education for students who have not yet entered the labor market on a full-time basis is only one component of a total education program—a component that stresses preparation for employment. The immediate objective of such a program is not economic but educational in nature . . . it is exploratory in nature, because one of the principal objectives of education is to increase student options. This does not mean that students should not be trained in specific occupations . . . but skills training is not the sole objective—or even the most important objective—of an education program with a vocational component. (p. 238)

Thurow (1979) believes that vocational education should offer development of saleable skills in some areas. But he also feels that the literacy standards and standards of "industrial discipline" for vocational education students must be as high or higher than those of students who come from academic education tracks.

Barton (1981) suggests that federal policy should "encourage the maximum integration possible between vocational instruction and general education" (p. 19) because this would increase general education opportunities for those terminating their education with high school and expand vocational offerings to those planning to go on to postsecondary education. In Barton's view the first priority is for vocational education to "be good education—in reading, in writing, in computing, in listening, and in problem solving" (p. 9). "No one who talks with employers can miss getting the message that they are concerned about basic skills and count them as much a part of employment preparation as specific occupational skills" (ibid.).

Employers' Position

Ironically, some of the greatest interest and concern about the educational goals and effects of vocational education come from employers in business and industry. Consider, for example, that in a recent survey of 775 manufacturers who were members of the National Association of Manufacturers, Nunez and Russell (1981) report that few of the respondents supported economic development or increased collaborative retraining efforts as areas of vocational education most in need of improvement.* Instead, 63 percent stressed teaching of the basics as the most important improvement that secondary vocational education should make. Moreover, 40 percent also felt this emphasis was most important for postsecondary vocational education, as well. As Nunez and Russell point out:

> Many manufacturers believe that the young population's mastery of reading, writing, and computing skills is unsatisfactory. Basic skills, employability skills, and occupational skills are all seen by manufacturers as important employee attributes . . . are regarded as vital preparation for work . . . and are not perceived as mutually exclusive. (p. xi)

*These results do not necessarily mean the respondents do not endorse these activities; they may think that other improvements are more important, and/or that vocational education is already doing an adequate job in these areas.

A broad-based survey (McKinney et al. 1981) of over five thousand respondents in sixty-two local education agencies in seven states found that "in general, job-related placement is *not* believed to be the primary purpose of secondary vocational education programs by educators, students, parents, or employers" (p. xix). The survey found that the greatest percentage of respondents ranked the goals of secondary-level vocational education in the following order of descending importance:

1. Provide skills needed to obtain a job
2. Create awareness of various occupations
3. Provide an opportunity to explore various jobs
4. Place students in jobs related to training
5. Place students in jobs not necessarily related to training

Useem (1982) reports that, much as with other employers across the country, "high technology executives believe that schools are not doing a particularly good job in training students in basic subject areas" (p. 26). She further reports that:

> Although educators accuse industry of wanting to turn their schools into narrow technical trade institutes, what employers want first is students who have thorough grounding in writing, reading, mathematics, science, problem solving and critical thinking. (ibid.)

Elliman's (1982) comments at Florida's annual vocational educator's workshop allow us to look beyond some of the survey statistics and gain insight into how some employers feel about vocational education. Elliman is general manager of Lucas Industries, a multi-billion-dollar, international conglomerate with operations in thirty-five countries. Elliman notes that:

> As I look at vocational schools, I'm a little concerned with some of the things I've seen that you're attempting to do, concerned that *vocational schools are overreaching themselves* [emphasis added]. We were talking last night about training in laser technology. I've never yet met vocational teachers who were qualified to teach laser technology. I say that because I have a great deal of difficulty with that area in industry, and we work every day trying to keep up with the technology. Why are you concerned with that? Surely your role is to teach the basics, and not to get that far advanced into all these peripheral areas. . . . *Your role as a teacher is to maximize the potential of any individual. I believe that is your only goal.* Whether the potential for a student is to become president of the company or to be a dishwasher, *your job as an educator is to get the most* out of that person. (p. 14)

Furthermore, highly specialized skills have limited application and use. The more specific they become, the less transferable they are to other occupations. Thus, it is argued, emphasis of highly specialized job skills at the secondary school level can significantly reduce or restrict students' work-related options. Moreover, as Rosenfeld (1982) points out:

> The more specialized and technical the skills, the more difficult it is for the public schools to stay current with rapidly changing technologies—to the point where even vocational administrators are wondering how they can keep pace. Equipment and course materials grow obsolete quickly. (p. 47)

These problems have been well documented in two recent studies conducted by Useem (1981 and 1982).

Thus, it is argued, the idea that one set of occupational skills can be learned once and should last a lifetime is no longer valid—if indeed it ever was valid. Rather, there is a need to help students prepare not only for a job, but also for work careers characterized by change.

Reasonable Expectations for Schools

Although schools cannot prepare students for all unknown future contingencies, it does seem reasonable to expect them to help students develop generally applicable, transferable skills and individual attributes to levels of proficiency useful in a wide range of situations. By such development, they may be adaptable and better able to perform successfully in changing environments. Additionally, to the extent that students are able to transfer their skills and knowledge effectively, the time and costs associated with supplemental training or retraining should be reduced and should reflect a savings to employers and individuals alike (Pratzner 1978).

Perhaps most important from a practical perspective, it is argued that it does not make sense for vocational education to focus on specialized skill development at a time when jobs simply do not exist. A national unemployment rate that averaged close to 10 percent in 1983 with little prospect for full employment, means that specific jobs are not now available and are not likely to become available for some time in the future.

Under these conditions, it is argued, vocational education should strengthen development of broadly applicable, fundamental skills (e.g., reading, writing, speaking, listening, computing, scientific thinking, problem solving, decision making) that are likely to be needed for effective performance in a wide range of new and emerging occupations when the economy turns around and jobs do become available. A recent National Assessment of Educational Progress (1982) report points out that these kinds of skills, now considered "high level" by educators, are likely to become "basics" for workers in the future. The report cautions that, "clearly we are not cultivating the raw materials—our future workers—who will be vital both for economic progress and ultimately for economic survival" (p. 8).

Robert Taggart (1983) notes that "basic academic competencies are a determinant of success in even a tight labor market, but these skills become more critical in a recession when employers push up their credential requirements" (p. 11). He feels that economic conditions have changed so markedly in the last two years that they have altered the needed prescriptions. "It now makes sense to . . . prepare for future jobs through education rather than for immediate jobs through training. . . . Whereas occupational skills training can be wasted if there is no immediate placement in training-related employment, education can be stockpiled because it is transferable" (p. 12). Taggart recommends that

> given what we know about the importance of education in the employment equation, and the logical imperative of focusing on transferable competencies in a slack labor market when specific jobs are not available, the most obvious large-scale initiative should be a national "Competencies Crusade" which would provide basic skills for the up to 30 million adults and young adults who are functionally illiterate. . . . A national, state, or local "Competencies Crusade" would . . . prepare the work force so that five years from now when the economy recovers, when there are few entry workers, and when the new growth occupations become clear, workers will be ready to take advantage of the opportunities. (pp. 16-17)

The Role of the Private Sector in Public Vocational Education

A major issue closely related to the issue of whether secondary-level vocational education should emphasize general or specialized skills concerns the appropriate role of business, industry, and labor in secondary school programs. Although this issue does not appear to be as pervasive or contentious an issue as the skills issue discussed previously, several authors note the need for cautious and thoughtful consideration of the involvement of the private sector.

Historically, business, industry, and labor have played a significant role in shaping public vocational education. Their continued involvement is felt by many to be critical if vocational education is to keep current with the latest technological and occupational developments in the labor market.

The need for continued and improved coordination, articulation, and involvement of business, industry, and labor in education is highlighted by a growing fear that development of this nation's human resources is not keeping pace with rapid developments in other areas. A serious and growing imbalance between available jobs and trained technical workers may stifle the rapid application of high technology and choke national efforts aimed at economic revitalization.

The Joint Economic Committee of the United States Congress (1980) feels that increased involvement of business, industry, and labor in education is needed for occupational training to keep current with the latest technological and occupational developments in the labor market. They note that labor market changes

> suggest the need for continued examination of the relationship between work and education. . . . New links must be forged between education institutions, training programs, and private employers. . . . The future employment market will require not only competency in the basic skills, but also attention to increasingly complex job-related skills that enable employees to adapt to changing technology, employment patterns and job opportunities. (p. 26)

In hearings on the reauthorization of vocational education before the United States House of Representatives, Carnevale (ASTD 1982) testified on behalf of the American Society for Training and Development that "the content of training intended to be responsive to specific job needs should be governed by the training specifications of employers" (p. 2). He went on to say:

> Employers are the ultimate consumers of vocational training and should be the principal influence over curriculum content in education and training for occupations. In order to close the gap between skills taught by vocational education institutions and job specific skill requirements, ASTD favors a range of incentives to promote greater collaboration between vocational education institutions and private firms. (p. 2)

On the other side of the issue, Silberman (1982) feels that:

> The assumption that greater cooperation of education, training, and employment services with business and industry will reduce unemployment and better match the supply of skilled graduates to the needs of the labor market, makes education and training the servant of the labor market; it is education for work. (p. 298)

Although Barton (1981) feels that to serve students, secondary-level vocational education has to equip them "in light of what works in the market place" (p. 9), he agrees with Silberman. He

feels that "twelve years of education is for more than just finding a first job in the skill that was studied last in high school" (p. 16). Barton also notes that:

> Education is responsible for making independent judgments about what constitutes an education, and in no way should become subservient to narrowly defined needs of individual employers. Its aim is vocational preparation to launch a lifetime of work, not to shape a worker for a narrow set of skills good for only one employer. (p. 10)

In his discussion of customized, industry-oriented vocational education programs, Rosenfeld (1982) cautions that:

> It would be unfortunate if this impoverished, big-business-oriented form of vocational education became the goal of all programs, particularly in the high schools where aspirations and attitudes are the stock in trade and opportunities can be so effectively expanded or cut off. And it would be sadder still if public funds earmarked for schools were diverted to programs that can barely be called "education" for companies that are not particularly interested in anything but higher profits. (p. 48)

Delphi Viewpoints on Relative Strengths and Emphases

All the Delphi respondents agreed that secondary-level vocational education should include job skills training along with employability skills development and occupational exploration. Although some felt that the emphasis should be greater on employability skills development and occupational exploration, most respondents agreed that development of basic computational and communication skills in all secondary-level students should be the primary goal. Several individuals stressed that secondary-level vocational education must prepare participants for two possible options: further education or entrance into the labor market.

Job-specific preparation was seen as the most typical type of occupational training now provided by secondary-level vocational education programs. The respondents felt, however, that broader-based preparation in occupational areas is what should be emphasized and can be done best at this level. Employer- and equipment-specific preparation received low ratings both for current and future emphasis at the secondary level.

Respondents gave several reasons why secondary-level vocational education should provide occupational skills training. Some respondents emphasized occupational skills acquisition for use in the labor market upon graduation from high school. Others emphasized "transferability" and said that learning to do a job well will transfer to knowing later on in life what goes into doing any job well. Additionally, some felt that secondary-level occupational skills training aligned with John Dewey's philosophy that vocational education, at its best, is a process of learning that should be experienced by all high school students.

The viewpoints of the respondents toward postsecondary-level vocational education were more homogenous. Consensus was high that postsecondary-level vocational education is doing what it should be doing—providing technical job skills specific to particular occupations.

Based upon the responses of the Delphi participants, the primary differences between the roles and functions of secondary- and postsecondary-level vocational education are as follows:

- Secondary-level vocational education is a multipurpose program intended to provide technical skills, and at the same time, foster good work attitudes, facilitate the transfer of skills needed in all jobs, motivate disenchanted learners, enhance basic skills attainment, serve as an exploration into the careers arena, and compensate for discrimination in society against special needs populations.

- Postsecondary-level vocational education is more single purposed in that its main function is to teach technical job skills specific to particular occupations.

When asked to describe the optimum role for secondary-level vocational education, most respondents focused on career education and exploration, basic skills, work values and attitudes, and on skills to enable a worker to move from one technology to another. A few respondents stressed technical job skills training and/or cluster occupational training. The strengths and unique characteristics of secondary-level vocational education that were mentioned include access to large numbers of young people (some of whom will not pursue any further formal education activities), a trained cadre of staff, and contacts with business and industry.

For postsecondary-level vocational education, the optimum roles suggested were development of specific job skills; service to an older, more highly motivated and job-ready population; and provision of training for jobs requiring postsecondary training. The strengths of postsecondary-level vocational education noted by the respondents include technical capacity and facilities, flexibility, linkages with business and industry, and good support services.

Secondary and Postsecondary Roles and Articulation

Improved articulation between secondary-level and postsecondary-level vocational education is a major area of concern with potentially significant implications for the future. Most of the Delphi survey respondents and much of the literature and research suggest that cooperative training programs between vocational education and business and industry are effective ways to provide occupational preparation. Most seem to agree that although these kinds of training arrangements are fairly common, they can and should be extended and improved. Less common, and at least equally important, are cooperative job training provisions linking secondary schools with postsecondary community colleges and technical institutes.

The emergence and growth of two-year, postsecondary institutions, beginning in the late 1950s and early 1960s, significantly broadened the institutional context within which public vocational education operates. With the growth and accessibility of two-year, postsecondary institutions, high school has become less of a "terminal" education program than it once was for many students. Although it is true that many students drop out before completing high school and others leave high school for immediate employment, many go directly into two-year postsecondary programs and many others return at a later time to two-year institutions or combine employment with a postsecondary education.

In fact, Campbell, Gardner, and Seitz (1982) point out that "a majority of high school graduates, both vocational and nonvocational, enroll in some type of postsecondary program" (p. ix). Moreover, these investigators report finding "no pattern of significance that suggested that more intensive vocational preparation [in high school] was systematically associated with reduced levels of postsecondary attendance" (p. ix).

The fact that high school is no longer the "terminal" education program it once was, together with the growth of two-year, postsecondary institutions and a range of other education and job

training opportunities available to adults (e.g., apprenticeship, military, and business and industry training programs), has two related consequences. First, this fact points out that vocational education in the United States has expanded into the adult arena. Second, it highlights the need to clarify the role and function of vocational education at both secondary and postsecondary levels.

In the United States, youngsters who are not going on to college and professional careers can simply wait until they get older and leave high school to obtain formal preparation for work; they can try to obtain part-time work while still in high school and hope to learn skills and knowledge that can lead to full-time work in decent jobs; or they can enroll in a high school vocational education program. Secondary-level vocational education is virtually the only formal system of job training available to youth in this country. It is the mainstream system for youth to obtain education and training for work that requires less than a baccalaureate degree.

Although there are other avenues to "employment" for youth—such as through family connections or part-time jobs—there are no other avenues to education and training for work for the great majority of youth in this country who have not yet reached the age for high school graduation. All of the major job training programs—those offered through apprenticeship, the military, employers, proprietary schools, and community colleges—are adult programs that are available only to adults or to older youths who have completed high school and/or are at least seventeen to eighteen years of age.

Among the practical concerns that mitigate against high quality, specialized skills training within secondary schools are tight money supplies at all levels, decline in school enrollments and new entrants to the labor market, problems associated with replacing obsolete equipment and facilities with new and expensive technology, and the difficulties of retaining high-quality faculty in the face of higher salaries and improved benefits in business and industry. Far greater consideration than has been the case to date should be given to cooperative types of arrangements for technical skills training.

Much of the literature and the Delphi surveys suggest that there are the kinds of distinctions between secondary and postsecondary vocational education shown in table 2-1. These kinds of distinctions reflect the position that because specialized skills training typically is offered at the end of general education, much of specialized vocational skills development should occur at the postsecondary level. These distinctions suggest further that perhaps vocational education is best thought of in terms of an individual's developmental process. This process extends beyond the bounds of either institutional setting; and although secondary- and postsecondary-level vocational goals are quite different, it is these differences that permit the two levels of programs to be viewed as complementary components of this larger individual development process and of a larger instructional sequence. Thus, it would seem that neither secondary nor postsecondary-level vocational programs alone are sufficient. Instead, provision of a broad-based vocational education program can be viewed developmentally, and both levels of programs can complement each other as logical components of a coordinated and articulated instructional sequence.

When addressing the issue of coordination and articulation between secondary- and postsecondary-level vocational education, the Delphi respondents indicated that this process could and should take place at the local level. They commented that coordination occurs as a result of a mandate or a crisis and that there are no readily apparent benefits to secondary-level personnel for working toward articulation. Most of those who felt that secondary-level vocational education should provide technical skills thought secondary- and postsecondary-level vocational education must necessarily be duplicated to be able to serve all ages. They also felt that learning accomplished at the high school level should be recognized and credited by postsecondary institutions.

TABLE 2-1

DISTINCTIONS BETWEEN SECONDARY- AND POSTSECONDARY-LEVEL VOCATIONAL EDUCATION

Secondary	Postsecondary
• This level of program is driven by individual needs; it tries to match programs to individuals; its goal is educational; its program is exploratory.	• This level of program is driven by labor market needs; it tries to match individuals with programs; its goal is training; its program is specialized job skills development.
• To meet its goal, the program must— a. be suited to individual needs, interests, and abilities, and b. offer the widest possible range of occupational experiences.	• To meet its goal, the program must provide specialized technical skills related to actual and anticipated opportunities for gainful employment.
• If it increases student options and is suited to individual needs, interests, and abilities, then students completing this program should be expected to pursue a very wide range of employment and educational options.	• If the program meets society's needs for skilled workers and is related to actual and anticipated opportunities for employment, then graduates should have high placement in occupations related to training.

Secondary schools might consider supporting and making greater use of the faculty, facilities, and programs of these postsecondary institutions for their students who seek specialized job preparation. Cooperative arrangements could be made whereby these students would leave their high schools for parts of days and/or parts of years to obtain specialized job training at nearby community colleges and technical institutes.

Among the potential advantages of such secondary-postsecondary cooperative training programs are the following:

- Potential cost reductions realized through consolidation and elimination of unnecessary duplication of expensive faculty, equipment, facilities, and programs at both levels
- Greater coordination and articulation between secondary- and postsecondary-level curriculum and instruction leading to greater training efficiency as reflected in such things as credit and advanced standing for high school students in subsequent postsecondary-level training, and the reduction of duplication and wasted instructional time for both students and institutions
- High school students' learning adult job skills in adult environments surrounded by and interacting with appropriate adult role models

- More instructional time and resources available at the secondary level so that vocational education can be available to *all students* as an alternative instructional technique for working toward broad educational and career objectives such as improvement of technological and economic literacy; application, practice, and transfer of basic skills to practical pursuits; development of appropriate work values, attitudes, and habits; increased knowledge of one's interests, abilities, and needs; appropriate career choice and improved knowledge of how to access further education, training, or employment effectively; and development of avocational interests and skills

Delphi Viewpoints on Appropriate Roles

The Delphi respondents felt that secondary- and postsecondary-level vocational education should address different national priorities and needs. Youth unemployment, equity and access, and basic skills were the top priority problem areas or needs where secondary-level vocational education was deemed to have an appropriate role to play. Problems or needs associated with displaced workers, high technology, and critical skill shortages were seen as the top priority areas that should be addressed by postsecondary-level vocational education.

In selecting these particular areas, the survey respondents seem to be suggesting that, in general, secondary-level vocational programs should improve their capacity to focus primarily on what are longer term educational needs and outcomes. Postsecondary-level vocational programs, on the other hand, should focus on what appear to be more immediate needs of the labor market for skilled technical workers.

Contributions at the secondary level. Because secondary-level vocational education is a part of the compulsory education system through which almost all youth must pass, it has the opportunity to provide early interventions, such as counseling, occupational information, and training, that may help to alleviate employment problems for some youth. The respondents suggested that secondary-level vocational education is in a good position to have a positive impact on many of the problems of youth unemployment for two reasons: first, because it is charged with educating and preparing students to become productive and contributing members of society, and second, because the instructional process or approach of vocational education appeals to the learning style of many students. In general, the respondents felt that vocational education at this level should ensure that its programs reflect labor market needs and that it should provide motivation, occupational information, and an appropriate foundation for further training and employment.

The respondents noted the following among the changes that secondary-level vocational education would need to make to better fulfill these functions: improving the quality of training and ensuring that it is better oriented to actual employment possibilities; integrating basic skills with general and occupational skills; helping create a more comprehensive system of education at the secondary level with larger, more flexible organizational patterns; linking on-the-job learning with in-school instruction; and increasing the coordination and cooperation within the broad educational and counseling functions of the school, with business and industry, and with local government.

Equity and access were felt to be high priorities for secondary-level vocational education. The Delphi study respondents made several suggestions. First, if steps are to be taken to promote equity and access, the secondary schools are in the position to do it; furthermore, they must do so before students drop out of the educational sequence. It was also suggested that better-quality vocational programs are needed (especially for less able students) in order to help ensure their

access to jobs and ability to compete for them in the labor market. One respondent noted, "It is important at the secondary level to begin to plant the seeds for minorities, handicapped, disadvantaged, and both boys and girls to consider opportunities that previously they may not have regarded as reasonable goals for them."

In the comprehensive high school, vocational education should seek better integration of college preparatory students and vocational education students. As one respondent put it: "The vocational program must neither become a dumping ground for less able students nor an elite preserve." Vocational education must take advantage of the fact that, at the secondary level, its program "is still largely an elective program and members of all groups can participate in it. Vocational education should make it possible for students to perceive themselves in a variety of occupational roles; it should provide youth with an opportunity to explore these different roles; and, it should provide them with support and assistance when and if they choose a nontraditional role."

In order to facilitate the ability of secondary-level vocational education to address equity and access goals more effectively, the respondents suggested that administrators and teachers need to examine their own attitudes and values with regard to these goals and to alter them if needed. One respondent noted that "legislation should provide fiscal incentives for integrated programs in which students from all social classes will be represented, rather than encourage their separation as is the case in present legislation."

A focus on basic skills development by secondary-level vocational education was considered to be a high priority. One respondent's comment that seemed to capture much of the sentiment of the group was the point that "a refocus on this area would be the best investment for reducing youth unemployment." Possessing the basic skills needed for employment was felt to be paramount to youth. In particular, basic skills were considered essential at this point in the educational process as younger students have not yet acquired all of the communication skills needed for life and work.

It was also pointed out that since part of the unique value of vocational education is in its being a process of learning, and since learning should go from the simple to the complex, vocational education could encourage acquisition of basic skills so that students could then move on to acquiring occupational skills. Another respondent suggested that:

> Vocational education can also engage students in cooperative projects that bring them in contact with people who are different from themselves, where they must interact and cooperate as a team to complete their projects, where they must listen to get instructions straight, where they must communicate with qualitative symbols, and where they must prepare memos and engage in written communication to succeed.

Because vocational education can serve as a motivating force for student learning and because "the teachers are practical as opposed to theoretical in their approach," one respondent felt that secondary-level vocational educators could deal effectively with basic skills acquisition. Secondary-level vocational educators can provide "a practical arena where the connection between basic skills and job demands is more clearly apparent to young people."

Suggestions on the changes needed in order for secondary-level vocational education to deal better with basic skills acquisition included the following:

- Development of "standarized measures" of basic skills by occupational area. Such measures, it was felt, could serve as "quality control" measures

- Access to business, industry, and public agencies so that vocational activities can be carried out (to the extent possible) in community settings and can help to ensure that students are better able to see the relevance of basic skills to occupational and community requirements

Contributions at the postsecondary level. Respondents rated the needs of dislocated workers as the highest-priority problem area that postsecondary-level vocational education should address. One respondent explicitly noted the close interrelationship between the problems of displaced workers and the problems of productivity growth and economic revitalization.

The "flexibility" of postsecondary institutions in responding to the training needs of adults was cited as a key reason why postsecondary-level vocational education has an important role to play in meeting the needs of displaced workers. For example, postsecondary institutions are felt to have the necessary flexibility or "elasticity" to accommodate large numbers of adults who may periodically seek training due to such emergencies as local plant closures.

One respondent noted that because the problems of displaced workers may take on increased importance through the remainder of the 1980s, those problems should be a primary focus of postsecondary-level vocational education. Because of the growing needs of displaced workers, one respondent felt that the 1980s could become the "golden age" for postsecondary-level vocational education. It should play an "assertive role" in becoming a part of the "rebuilding fabric" for displaced workers; it is "the natural resource" for retraining displaced workers.

Among other things, postsecondary institutions were urged to seek out displaced workers and provide training in new and emerging industries and occupations. Additionally, it was suggested that postsecondary institutions provide counseling and personal assessment to assist displaced workers in identifying their transferable skills, refer them to suitable training opportunities, and assist them with placement in other types of employment.

Among the special characteristics and capabilities of postsecondary institutions that should enable them to address these problems and needs, the following were noted:

- The capability to provide instruction "around the clock" with personnel drawn from education, labor, and industry
- A training environment meant for adults
- Regional availability of institutions
- The great number of resources available for adult career counseling and job placement

The respondents felt that a number of changes are needed in order for postsecondary institutions to be more responsive to the needs of displaced workers. Here are a few examples:

- Working more closely and cooperatively with employers, private agencies, vocational rehabilitation agencies, JTPA programs, employment services, and other community-based organizations
- "Tuning in" to local labor market phenomena and the key actors in the local labor market
- Providing for such special needs of displaced workers as job search skills and assistance and remedial education

- Developing mechanisms to respond quickly and effectively to unplanned disruptions in local labor markets such as plant closings and layoffs

- Convincing state and local policymakers and officials that postsecondary-level vocational education is flexible and capable of meeting the needs of displaced workers

- Demonstrating, at the local level, a greater use of the open-entry/open-exit concept. Local programs must show the capacity to enroll both secondary- and postsecondary-level adults into the same program if training stations are available. Local level institutions will have to learn how to run programs on multiple shifts

- Removing, at the state level, enrollment limits on programs in growth areas. Currently, the greatest drawback that public postsecondary-level vocational education has in serving the displaced worker is that states have placed a uniform limit on growth of programs and have thus prevented enrollment expansion, particularly in those occupational programs that could lead to employment

- Linking, at the national level, the U.S. Employment Service and vocational education more closely so that displaced workers, very early in their unemployment, are enrolled in a training program rather than kept waiting until unemployment benefits have expired. There has to be a recognition that existing postsecondary-level institutions are operating, for the most part, at maximum capacity; also there has to be federal investment in expanding the capacity of programs. The national level has to give some leverage to states to allow growth and expansion of postsecondary-level vocational programs for displaced workers

The survey respondents noted that training requirements for high-technology areas are changing rapidly, that training in many areas of high technology requires a firm foundation in mathematics and science, and that higher education and postsecondary institutions are the appropriate and most realistic places for providing this training. More advanced instructional content, together with experienced faculty and appropriate equipment and facilities, should make it possible for postsecondary programs to provide effective training for high-technology occupations.

To provide the trained technicians needed for these occupations, postsecondary-level vocational programs will need to translate research results into step-by-step operating instructions that will be useful in defining the scope and content of high-technology jobs for which training is needed. They will also need to develop state programs (to tie vocational programs more closely to the development work of colleges and universities) and to make more extensive and better use of advisory committees.

Because many areas of critical skill shortages are in high-technology fields, postsecondary-level vocational programs have a related role to play in this area. The respondents felt that postsecondary-level vocational education institutions will need to determine where critical skill shortages exist, close out programs in which a demand no longer exists, and build their instructional capacity in conjunction with other postsecondary institutions and the private sector in order to provide specific technical skills effectively in areas where critical shortages exist.

Postsecondary-level vocational programs have demonstrated flexibility in program planning and management and the necessary diversity of program offerings, faculty, and equipment to respond to critical skill shortages. Additionally, the respondents felt that many adult students in postsecondary institutions are there because they are ready to enter specific occupations as quickly as possible—"they know what they want and where they are going."

Among the changes that respondents felt were needed in order for postsecondary-level vocational education to improve its responsiveness to critical skill shortages were the following:

- Institutions must provide greater leadership and emphasis on practical experience as a part of instructors' credentials and institutional hiring criteria
- Institutions must offer greater program and management flexibility to meet relatively rapid changes in skilled worker demands more effectively
- Provisions must be made by institutions for both short-term and long-term training opportunities
- Institutions must foster greater cooperation with business, industry, and public organizations
- Institutions must not be tied too tightly to existing offerings, equipment, or faculty
- Institutions must emphasize the needs of individuals and the workplace as opposed to their internal needs. Dollars that can be utilized to begin new programs, to mount short-term programs, and develop employer-specific programs must be available for local managers. Local-level managers must have the ability to state whether or not they can meet the needs of a given or expanding industry
- State agencies must provide encouragement, leadership, and curriculum development support if local postsecondary-level programs are to have the flexibility, the start-up capacity, and the resources needed to address critical skill shortages in a timely and efficient manner
- Federal dollars must support training in critical skills that are essential to the nation's defense and economic growth. States are more likely to fund programs that meet their standard formulas of allocation through full-time enrollment equivalence; also they are less likely to have a pattern for funding programs to prepare people for new and expanding industry and for mounting short-term, intensive programs to address areas of critical skill shortages. There must be some direct funds to provide these kinds of programs. Increasingly it will require the states to set up flexible funding patterns to support such efforts

Strengths and Emphases of Other Key Agencies and Programs

In the course of the Delphi surveys, the respondents were asked about other training conducted outside of public vocational education. The respective strengths and emphases of these programs are summarized in this section.

Apprenticeship. Apprenticeship programs were seen as providing specific job training in skill areas that are technical in nature but also require a great degree of discretion. Apprenticeship programs, more than any other program, are expected to provide primarily technical job skills training. The strengths of the apprenticeship system include the partnership arrangement (earn and learn), the provision of classroom training in related areas, the on-the-job nature of apprenticeship learning, and the relevance of training to the workplace.

Business and industry training. The Delphi survey respondents felt that the best training for work skills needed on the job is provided by business and industry. Such training may also be upgrading in nature or in response to the development of new technology. Ideally, business and industry training is interfaced with the education community in order to ensure quality. The strengths of training provided by business and industry are that knowledgeable trainers address real needs, that the training is practical and relevant, and that there are incentives to learn.

Proprietary schools. The role for proprietary schools is the provision of technical job skills and specific job training in areas not addressed through public postsecondary-level programs or apprenticeship programs. Proprietary schools' strengths lies in their ability to quickly adapt to market forces, their strong links with employers, and their programs designed specifically for employment.

Military job training. Military training was seen as designed for the specific needs of the military. One respondent noted a remedial emphasis available in military training, and another noted that the optimum role of military job training would include transition services to the nonmilitary sector. The strengths of military training are seen to be the nature of its mission, its controlled environment, the fact that students earn and learn at the same time, the use of competency-based instruction, and an ability to invest substantially in curriculum development because of the size and resources of the military establishment.

Government training programs. The role described for CETA* was as coordinator and broker of training for unique, at-risk populations. Special attention was focused on the provision of basic skills, work values and attitudes, labor market information, and specific occupational skills. The strength of CETA was its ability to leverage resources from a variety of agencies, its single-purpose function, and its capacity to provide supportive services.

The respondents described the role of the Job Corps as providing a highly structured alternative education and training program for those needing residential and multifaceted programs. The strengths cited include the controlled environment, the carefully targeted population, and the ability to motivate learners.

For community-based organizations, respondents noted the distinction between the storefront types of program and national programs and organizations. The roles best performed by community organizations are job attitude and basic skills training, working with entire families, and a broad-based approach to making a person employable. The strengths of community-based organizations are in their service to those not served by other systems, their community involvement, and the provision of important role models.

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*Most of the functions performed under CETA (the Comprehensive Employment and Training Act) have been transferred to the new Job Training Partnership Act (P.L. 97-300), which has a strong emphasis on involvement of private sector employers.

The Role of Vocational Education as a Component of the Nation's Job Training System

One of the most important and least understood roles of vocational education is as a component of the nation's decentralized education and job training system. As the nation moves through the decade of the 1980s, it does not have a "coordinated" system to provide education and training for work; nor does it have a "comprehensive and unified" human resource development policy to guide its efforts in meeting the employment and training needs of its citizens. Instead, it has developed a wide array of diverse and essentially independent, uncoordinated employment and training-related agencies, programs, and services. These include the key agencies and programs that were discussed briefly in the previous section.

Collectively, these agencies and programs are a very large and very diverse enterprise spending billions of dollars annually. Such huge diversity in programs and services is not necessarily bad. It can contribute to the broader goal of providing multiple service deliverers at the local level so that individuals at different ages or stages of their lives have options that meet their specific developmental and employment needs. But much of the potential value of this diversity may be lost because of the independence with which these deliverers operate and the apparent lack of models, incentives, or mandates for effective collaboration, cooperation, or linkage.

Moreover, the smorgasbord of extant programs and services complicates development of a comprehensive policy for human resource development and contributes to the creation of a "vicious cycle." On the one hand, as noted by the National Commission on Employment and Unemployment Statistics (Frazer 1980), "Inadequate information on the utilization and effectiveness of the education and training programs further hinders the formulation of public policies to promote the effective use of our human resources" (p. 65). On the other hand, lack of a comprehensive human resource development policy may lessen the potential impact on and contributions of these programs and services to the education, employment, and training needs of the nation. Seventeen years ago, Rosen (1966) observed that:

> We casually accept the fact that millions of our workers are learning their skills in a haphazard and inefficient manner. As a nation, we have never faced the fact that we were tolerating an unequal training program that was either bypassing millions of future workers or was providing them with inadequate skills and education. The preparation of workers for jobs has been almost left to happenstance. We have tolerated shoddy workmanship and incompetency even though we possess the ability to train the best qualified labor force in the world. (p. 45)

In 1980 Stewart expressed many of the same views as Rosen, suggesting that not much has changed in the intervening years. Stewart noted that "no other major industrial country evidences such narrowness in training policies and programs or such apparent lack of concern over the risks of failing to take adequate measures for enhancing work skills for productivity and for adaptability" (p. 62). In Striner's (1982) view:

> Nothing so encapsulates our nation's problems as our traditional shortsighted unwillingness to provide adequate funds for developing the skills necessary for an effective labor force. Refusing to invest sufficiently in all sorts of vocational education and training is more than just being penny-wise and pound foolish. It is refusal to face up to the fundamental requirements of a major technological society: to support the continuing investment necessary to provide an up-to-date labor force. (p. 24)

Proposed Remedies

Given the magnitude of the economic, technological, and demographic changes in our economy and society, Striner (1980) concludes that:

> We must adopt a philosophy, supported by the necessary legislation and funds, which sees education and training throughout our life as an absolutely necessary national investment strategy, or we will continue to be plagued by unemployment, underemployment, low productivity, and inflation. (p. 9)

Silberman (1982) notes:

> Most policymakers agree that the effective development of vocational skills in both young and adult members of our society cannot succeed through the lone efforts of the public schools. The very nature of the task requires the cooperative efforts of employers, unions, government, education, and other community-based organizations, each performing what it does best. The requirement is especially salient in the face of scarce resources and an attitude among legislators that waste and inefficiency exist in publicly supported programs at all levels. (p. 279)

Taggart (1981) feels that if the employability problems of youth and adults are to be cured rather than simply mitigated, "it is necessary to pay much more conscious attention to, and place more priority on, human resource development" (p. 361). He feels that "there needs to be a new vision of what can be or should be achieved in the future through human resource development" (p. 338).

Taggart, Silberman, and David each offer similar thoughts and recommendations about the need for and development of a comprehensive human resource development policy. In Taggart's (1983) view:

> We must begin thinking about long-term impacts and "quantum leaps," not just immediate outcomes and marginal gains. A stable training *system* is needed rather than an ever changing array of separate training programs. There must be long-term strategies, both locally and nationally, a range of new opportunity tracks . . . quality, not just quantity, needs to be emphasized. (p. 10)

Silberman (1982) feels that "fragmented programs wherein one needs a local coordinating council to put pieces together that should never have been separated in the first place show the need for legislative reform at state and federal levels" (p. 305). He recommends that:

> A centralized preventative approach to reducing fragmentation of programs is necessary; there is little hope that local cooperative action will remedy the jurisdictional problems ensuing from proliferating programs at the state and federal levels. . . . If policymakers did a more thorough job, many local problems of cooperation and coordination would be avoided. (p. 305)

David (National Institute of Education 1981) believes that one of the most important signals for program coordination was provided by the Vocational Education and CETA Amendments of 1976 in the charge given to the National Advisory Council on Vocational Education, the state advisory councils, and the National Commission on Employment Policy. That charge was

> to identify training needs and assess the extent to which *all* the programs conducted under *all* the pertinent federal programs represent a consistent, integrated, and coordinated approach to meeting such needs . . . [it] may be said to invite the adoption of a new conception of a comprehensive and unified federal policy for human resource development and employment. (p. v-26)

Such a charge poses a formidable challenge. We know surprisingly little about the current structure of education and training opportunities for work and how well this structure serves the needs of individuals and the labor market. It is clear, however, that in a decade of tight money supplies at all levels, shortages of new labor market entrants, declining labor force growth rates, displacement of growing numbers of adult workers, and high rates of unemployment and underemployment, vocational educators will need to learn a great deal more about the decentralized education, training, and employment delivery system of which vocational education is a key part.* This knowledge is especially important if vocational education is to capitalize appropriately on the strengths and specializations of various agencies and institutions and to establish effective linkages and articulation for avoiding unnecessary, unplanned duplication in the delivery of programs and services.

Conclusions

The information presented in this chapter has attempted to demonstrate that economic conditions, technological change, and demographic shifts have had and will continue to have significant effects on the role and function of vocational education. Without a doubt, the dominant effect has been to move vocational education toward greater emphasis on the development of highly specialized skills training for specific occupations. Vocational educators are being urged to expand specialized skills training in high-technology areas, to play a vital role in state and local economic recovery plans, and to seek aggressively ways to increase the involvement and cooperation of business and industry in their programs.

At the same time, there is a growing consensus among an increasing number of knowledgeable people that the economic, technological, demographic, and educational conditions in the nation require secondary- and postsecondary-level vocational programs to serve different roles and functions. The consensus among this group, though by no means clear and widely articulated, is that vocational education at the secondary level should be integrated better with general education and that emphasis should be on the development of broadly applicable skills useful to students in a wide range of future occupations. While the focus should be on strengthening vocational education's contributions to general education, preparation in broad occupational areas (rather than in specific jobs) should be available to secondary-level students who choose it and can benefit from it.

At the postsecondary level, the dominant theme seems to be that programs should expand their capacity to serve a broader clientele and a broader range of training needs. By and large,

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*An important step toward obtaining such information was achieved through the first in a series of Annual Policy Forums conducted by the National Center in October 1981. This Policy Forum was the first attempt to examine comprehensively the contributions of this country's diverse education and training institutions to the common goal of preparing workers for the world of work. The proceedings of the Policy Forum—*Job Training for Youth: The Contributions of the United States Employability Development System* (Taylor, Rosen, and Pratzner 1982)—provide a single source document of authoritative, in-depth descriptions of each of the key education and training sectors. Each of the chapters was prepared by experts in a given sector. The editors have included explicit policy implications and recommendations related to each sector.

postsecondary institutions are urged to work more closely with business and industry to emphasize and improve programs developing highly specialized skills, especially those needed in new and emerging occupations in the service sector and in high-technology areas.

It is highly probable that these issues and distinctions will continue to be at the heart of dialogue and debates about the roles and functions of vocational education throughout this decade. It is hoped that this chapter will help to stimulate and contribute constructively to that dialogue.

To that end, a number of policy implications and questions are posed. They are not exhaustive lists, merely suggestive of some of the kinds of policy issues and questions that must be addressed ultimately, either by conscious choice or by default. Finally, several areas of needed research are noted.

Some Policy Implications

If vocational education is to strengthen its technical skill development capacity significantly, a number of policy implications seem evident. At a minimum:

- Substantial federal and state vocational funds must be earmarked for updating and modernizing vocational education equipment and facilities at both secondary and postsecondary levels in order to reflect adequately technological and occupational changes in the labor market

- Federal legislation should target funds for specialized skills training to those most in need, that is, to displaced and unemployed adult workers and to poor, disadvantaged youth

- Federal and state vocational legislation must also emphasize and provide funds to supplement salaries for vocational faculty in new and emerging occupational areas in order to make their positions more competitive with those available in business and industry. Additionally, funds should be earmarked to support a variety of approaches for updating and retraining vocational faculty in new technological developments and occupational changes in their fields of expertise

- Federal vocational legislation should include provisions requiring close and significant cooperation and involvement of vocational education in state and local economic recovery plans. Included in these provisions should be requirements for demonstrating that vocational education programs are responsive to national, state, and local labor market demands—especially in areas of critical skill shortages. Programs should also demonstrate that they are sensitive to the other sources in their areas that supply trained workers

- Federal and state vocational legislation should encourage even greater collaboration with and involvement of business, industry, and labor in all aspects of vocational education programs

If, on the other hand, vocational education is to strengthen its educational role at the secondary level significantly and is to seek to improve the educational achievement of students, then a very different set of policy implications will follow. At a minimum:

- Federal legislation should more clearly define and distinguish the principal roles and functions of vocational education at the secondary and postsecondary levels, and funding provisions should reflect these key differences

- Federal and state vocational legislation must emphasize and provide funds to upgrade and retrain vocational faculty in the latest techniques and approaches for teaching a broad range of fundamental skills

- The evaluation criteria in the current federal vocational law must be revised. Instead of training- related placement and employer satisfaction, alternative measures of educational achievement will be needed as success criteria

- Federal vocational legislation should include provisions and should earmark funds for secondary- and postsecondary-level institutions to establish joint, collaborative arrangements whereby postsecondary institutions can provide preparation in specific job skills for secondary-level students who choose to pursue job training and can benefit from it.

- Federal and state vocational legislation should encourage and provide funds for a broad range of research, development, and dissemination activities that focus on new and innovative techniques for improving educational skill achievement in vocational education programs. Activities should also be funded to develop more effective methods and techniques for measuring the educational achievement and outcomes of vocational education

Regardless of whether technical skill development or the educational role is emphasized, a number of questions arise.

Some Questions

- What should be the optimum role and function of each of the major programs or agencies engaged in job preparation? What changes will be required in current programs if these roles and functions are pursued?

- How do the optimum roles and functions of each agency or program influence which problems of national importance and priority will be addressed and how they will be addressed?

- To what extent should these various job preparation agencies and programs be coordinated and articulated? How can greater articulation be achieved?

- What should be the role of business, industry, and labor in public vocational education, and in particular, what should be their role in public secondary-level vocational education?

- How can public vocational education better measure and demonstrate its labor market effects and its educational effects?

Some Areas in Need of Research

It should be obvious that each of the questions posed in the previous section implies a broad research and development agenda. None of these agendas will be itemized. Instead, two areas will be discussed briefly that were touched on earlier. These two areas especially seem to warrant future research and development by vocational educators.

The educational effects of vocational education. There is very little research and evidence related to the educational goals and effects of vocational education. What little evidence is available shows mixed results, and few firm conclusions can be reached on the basis of this evidence.

One reason for the lack of a strong impact of vocational education on basic skills achievement may be that vocational programs currently spend little time on the development of these skills. For example, Halasz and Behm (1983) report the results of two hundred hours of observation of 168 students' time on task in ten vocational education classes. Their results indicate that these students spent very little time on basic skills. In fact, they spent about as much time on breaks as they did on basic skills, and slightly more time on employability skills than on setting up and cleaning up the shop or laboratory facilities.

A related reason may be the way in which basic skills have been traditionally defined and measured. When defined at all, basic skills are usually defined by example—typically as reading, writing, and/or arithmetic. Sometimes, however, these definitions may include only one of these skill areas; other times they may include different sets of skills. Besides the obvious confusion that this ambiguity causes in the rhetoric on basic skills, the more important problem with this kind of definition-by-example is that it does *not* answer the fundamental question of what makes any skill *basic*. In the absence of a clear definition of basic skills, much of what is thought and done about their development may be relatively ineffective.

It seems clear that there is nothing inherent in the nature of skills to suggest that some are basic and some are not. Rather, it seems, it is the range of potential application and use of a skill that allows one to sort out or characterize some skills as more basic or as general skills. Obviously, the application and use of a skill can range from specific, limited application and use to broad or widespread application and use.

Thus, basic skills can be defined as those skills having the broadest applications and multiple uses. Potentially, they are highly transferable skills that are useful in a wide range of situations.

Given this definition, it is apparent that what is termed a basic skill is relative. There is no fixed list or set of basic skills waiting somewhere to be discovered. Their "basicness" is a function of their range of potential application and use.

One implication of the foregoing definition--versus the traditional definition by example—is that more skills should be appropriately thought of as basic skills. Certainly reading, writing, and computation are important basic skills, but so are listening and speaking, problem solving, decision making, and a long list of others that are useful in a wide range of life and work settings. Often, however, these additional skills are not thought of as basic. Thus, one line of research suggested by this alternative view of basic skills is the systematic identification of skills needed to perform successfully in a wide range of life and work situations.

The broader definition of basic skills suggested here implies that their development does not fall conveniently into any one program or service area of the school. It is a total school responsibility, not just the concern of the elementary school or of a single discipline area within the school.

The risk here is that the combination of the broader definition and derivation of basic skills with the compartmentalization and disciplinary base of education—especially secondary-level education—could easily mean that the development of basic skills is not seen as anyone's explicit responsibility. A range of research, development, and policy analyses is needed at the elementary and secondary school levels (1) to identify better the specific skills that various school programs and levels are attempting to develop, (2) to uncover commonalities among programs and levels, and (3) to develop improved policies and approaches ensuring more systematic development of critical skills.

Additionally, more research and development attention needs to be given to mastery learning and teaching for transfer as ways of increasing the range of functional applicability and usefulness of skills. Renewed research interest should be given to the study of mastery learning and the transfer of learning. At a minimum, it seems highly desirable that schools should provide learners with opportunities to reflect on what is being learned. Students should also practice the application and use of skills and knowledge under a wide variety of conditions and circumstances so that the potential for transfer and wider use of those skills in various and novel situations is increased. It seems desirable as well to inform learners that skills developed to levels of mastery potentially are broadly applicable skills. Learners should then be provided with a range of examples or instances in which the skills they are developing could be applied. In so doing, learners should be informed of the skills they have acquired and their level of proficiency in those skills; they should also be informed of skills not acquired or not developed to higher levels of proficiency that represent remaining developmental needs. These remaining needs should serve as personal objectives for the continuous learning of the individual.

Statewide tests of minimum competencies for graduation are being developed that suggest alternative and perhaps more meaningful and useful definitions of "basic" skill areas. Research and development may be of value to examine minimum competency test results systematically across states that now use these tests. Comparisons of results on these tests with results on more traditional measures of so-called basic skills would be of interest. Additionally, comparisons of the performance of vocational, academic, and general education students within and across states could provide an alternative estimate of the skills achievement and relative effectiveness of high school programs.

Articulation and coordination in vocational education. This chapter points out that in times of tight money supplies at all levels, the nation cannot afford to duplicate expensive vocational education training equipment, faculty, facilities, and programs. This is especially true for public secondary and postsecondary institutions.

Secondary-level vocational programs are reported to be declining in quality as equipment and facilities become outdated and schools cannot keep up with technological change and occupational developments in the labor market. If this trend continues, greater attention and resources will be directed to postsecondary-level programs—especially for meeting the retraining needs of an aging population and the ever-increasing numbers of displaced adult workers. For at least the next ten years, secondary school enrollments will continue to drop and faculty are likely to leave for more lucrative jobs in industry. These occurrences are likely to weaken secondary-level vocational programs. Additionally, the waste of time and resources of both students and institutions—resulting from a lack of coordination and articulation between secondary- and postsecondary-level programs and a lack of mechanisms for getting advanced standing and credit for relevant secondary-level vocational education and training—will no longer be justified or tolerated.

Alternative models for the coordination or consolidation of secondary- and postsecondary-level technical skills training should be developed, and their feasiblity should be examined. For example, research, development, and policy analyses should examine alternative models for coordination or consolidation of each of the types of arrangements currently operating in the states to provide public vocational education.

Thus, in states where vocational education is principally offered through postsecondary programs, few major changes in delivery may be required. In states where both secondary- and postsecondary-level vocational programs operate in parallel (but are independent and uncoordinated), and where secondary-level area vocational-technical schools are the dominant institutions, coordination or consolidation could require substantial changes, which may be impossible in all but theory. For example, consolidation in these cases could require changing area schools into postsecondary, associate's degree-granting institutions. In addition, new types of cooperative education arrangements could be developed between comprehensive (home) high schools and the new postsecondary institutions to integrate specific occupational preparation of secondary school students with adult vocational preparation. In any case, development of alternative models for meaningful secondary and postsecondary coordination or consolidation, as well as examination of their feasiblity under various conditions, could be extremely valuable.

The remainder of the 1980s will be difficult for the nation as it struggles to reverse the decline in productivity growth, to revitalize economic development, to adjust to rapidly changing technological and occupational developments, to reduce record levels of unemployment and underemployment, and to accommodate significant demographic shifts. All of our major institutions will need to devise new approaches for dealing with old problems.

In education and training, new and innovative approaches and programs will be needed. Where public vocational education adapts to the changing social and economic context in which its programs and services are required and delivered, it will become a stronger and more viable educational and training enterprise.

APPENDIX TABLE 1

KEY COMPARISONS OF VARIOUS EDUCATION AND JOB TRAINING AGENCIES AND PROGRAMS

EDUCATION AND TRAINING AGENCIES	EMPHASIZES–	HAS–	SERVES– (Role and population)
Secondary vocational education	• work values and attitudes (e.g., dependability, cooperation, grooming, work norms) • basic skills (e.g., reading, writing, computing) • technical job skills: - occupational area preparation (materials and methods common to a group of occupations) - world-of-work preparation (basic tool skills, occupational survival skills)	• access to large numbers of young people • a trained cadre of staff • contacts with business/ industry • a mixed job placement record* • inadequate and obsolete equipment and facilities in some cases	• in-school youth* • as an integration of general and vocational education* • to provide socialization at an appropriate time in life* • adults (through adult education programs that are administered by secondary vocational education)
Postsecondary vocational education	• technical job skills specific to a particular job (e.g., secretary, computer programmer, keypunch operator) • basic skills • work values and attitudes	• technical capacity and facilities • flexibility • linkages with business and industry • supportive services • a good placement record* • ability to provide training for specific industries • use of part-time faculty from industry	• nontraditional students • eighteen to twenty-one-year old youth • an older, more job-ready population • as a provider of training for jobs requiring a postsecondary level of expertise
CETA	• teaching of job skills specific to a particular job (to a lesser degree than other providers, however) • work values and attitudes • basic skills • English as a second language • job search training	• ability to leverage resources from a variety of agencies • a single purpose function • supportive services • a weak quality standard for training*	• as a coordinator and broker for a unique, at-risk population • as a second chance for out-of-school youth*

*Comments added by researchers

APPENDIX TABLE 1 (Continued)

EDUCATION AND TRAINING AGENCIES	EMPHASIZES	HAS–	SERVES– (Role and population)
Job Corps	• job entry, maintenance, and advancement skills (e.g., how to complete a resume, behave in an interview) • basic skills • world-of-work skills (e.g., basic tool skills, occupational survival skills) within the technical job skills area • technical job skills • socialization • competency-based instructional methods	• a residential, highly structured setting • a high dropout rate (at beginning)* • a high individual cost* • ability to motivate • a good record of labor market effects for completers	• a targeted population (hard-core unemployed, disadvantaged youth)
Apprenticeship	• technical job skills specific to a particular job (to a greater degree than other providers)	• correlations with economic conditions • linkages with public postsecondary education • classroom training combined with on-the-job training • an earn-while-you-learn feature • high relevance to the workplace • a small range of industries/ occupations* • highly individualized training* • a highly restrictive entrance	• adults* • small numbers of persons* • as provider of training in skill areas that are technical in nature but still require a great degree of discretion
Proprietary schools	• technical job skills specific to a particular occupation	• a relatively higher cost to trainee* • only job-related instruction* • restrictive entrance requirements* • ability to adapt quickly to market forces • strong links with employers • good placement records* • short-term, up-to-date employer-specific training*	• as a provider of training for occupations not addressed through public postsecondary programs or apprenticeships (e.g., bartending, locksmith) • as provider of training for highly marketable occupations and for occupations requiring a postsecondary level of expertise

*Comments added by researchers

APPENDIX TABLE 1 (Continued)

EDUCATION AND TRAINING AGENCIES	EMPHASIZES–	HAS–	SERVES– (Role and population)
Community-based organizations	• work values and attitudes • English as a second language* • strong race and ethnic identity* • basic skills remediation	• role models • involvement with the community • no consistency in quality* • little emphasis on job-specific technical skills • a highly individualized approach* • outreach components	• persons not served by other systems
Business/industry	• technical job skills specific to a particular employer's needs and their equipment • skills for upgrading employees • skills for new technology	• trainers with expertise • high job relevance • internal/closed systems* • capability of interfacing with the education community • an earn-while-you-learn feature	• adults, employees (restrictive)*
Military	• basic skills • job-specific skills • employer/equipment specific skills • competency-based instruction • socialization	• ability to invest in curriculum development • a controlled environment • a unique mission • an earn-while-you-learn feature • an internal/closed system* • credibility with civilian employers as proxy for maturity and for some occupational skills*	• out-of-school youth and adults*

*Comments added by researchers

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CHAPTER 3

EVIDENCE SUPPORTING SELECTED OUTCOMES

Floyd L. McKinney
Patricia G. Fornash

Introduction

Policymakers are becoming increasingly aware that vocational education is made up of a broad range of programs that operate in diverse and complex settings frequently with multiple outcome expectations. Farley (1979), for example, identified 252 questions, posed by various individuals or groups, about the expected outcomes for vocational education. For decision makers concerned with overall policy for vocational education, additional concern is raised by the diversity of expectations among the program areas in vocational education. This diversity increases the difficulty of ensuring that policies and decisions are equitable for all concerned.

The identification of outcomes expected of vocational education should involve many considerations, including goal derivation and selection, contextual specification of the socioeconomic setting, identification of client characteristics and expectations, and labor market needs. In addition, careful consideration should be given to the extent to which the expected outcomes can be supported by fundamental theories, concepts, and findings from fields such as sociology, psychology, history, futures research, economics, and philosophy. Such evidence should provide a strong basis for the identification of appropriate outcomes to expect of vocational education. It is to this consideration that the study reported in this chapter was directed.

The overall goal of this study was to produce information on the basic theories and findings from relevant disciplines that can be used to support or reject the appropriateness of selected outcomes expected of vocational education. The objectives of the study were—

1. to identify outcomes for vocational education appropriate for—
   a. secondary programs, including selected special needs groups,
   b. postsecondary programs, including selected special needs groups; and
2. to develop a rationale and specifications supporting each of the outcomes identified in the preceding objective.

SOURCE: This chapter is based on the report *Selected Evidence Supporting or Rejecting Eighteen Outcomes for Vocational Education*, published by the National Center for Research in Vocational Education (McKinney and Fornash 1983).

Outcomes, as defined by Darcy (1979), are "the consequences of vocational programs"; these may be "intended or unintended, positive or negative, short-term or long-term, economic or non-economic, direct or indirect" (p. 11). A goal is the object toward which the vocational education program is directed or toward which individuals in the program direct their actions and efforts. In many instances the relationship of certain outcomes to goals will be obvious; in other instances the relationship will not be clear. The goals for vocational education vary greatly from one situation to another and can be highly diverse within a given program area in one school building.

Research Procedures

An early and important task for the project staff was to identify a limited number of outcomes expected of vocational education. It was thought that about twenty outcomes would be all that the project staff and the authors of the papers could consider thoroughly. Work done earlier at the National Center (Farley 1979) had resulted in the identification of 252 outcome questions.* The project staff determined the importance of each of the 252 outcome questions according to the following criteria:

1. Historic—Was the outcome important in the past?
2. Individualistic—Is the outcome important in contributing to the unique attributes of the individual?
3. Societal—Is the outcome important in contributing to the improvement of social relationships among human beings?
4. Economic—Is the outcome important in contributing to the production, development, and management of material wealth for the individual, business/industry, or country?
5. Futuristic—Will the outcome be important in light of projected trends and developments?

By giving each outcome question a high, medium, or low rating for each of the above criteria, the project staff identified thirty-one outcome questions as most appropriate for consideration in the study.

For each of the thirty-one outcome questions, the project staff developed an explanatory statement and examples of outcome attainment; they also identified the appropriateness of the outcomes for secondary and postsecondary groups, including selected special needs populations. The wording of the outcome questions was also changed to state expected outcomes.

The thirty-one outcomes, including the explanatory material, were shared with other National Center staff and nine selected vocational educators who were not staff members at the National Center. These respondents were asked to judge the importance of the thirty-one outcomes according to the previously stated criteria—historic, individualistic, societal, economic, and futuristic. From this rating of the outcomes, eighteen were selected for consideration in the study. Explana-

*The National Center has conducted a number of studies concerning outcomes for vocational education. An extensive review of the relevant literature is contained in the following documents that report these studies: McKinney, Gray, and Abram (1978); Bolland (1979); Darcy (1979, 1980); Farley (1979); and Taylor, Darcy, and Bolland (1979).

tions and examples of outcome attainment are presented in the section titled "Evidence/Implications." All but two outcomes—"retraining workers" and "upgrading occupational competencies"—were judged as potentially appropriate for both the secondary and postsecondary level; and all were considered potentially appropriate for special needs populations.

Some of the outcomes are societal in nature, some are institutional, and some are individual. No attempt was made to limit the number of outcomes that were societal, institutional, or individual in nature. The following listing of the outcomes is random and does not indicate any ranking of importance or significance of one outcome in comparison to another outcome.

- Increased awareness of need for basic academic skills
- Satisfactoriness to employers
- Trained workers for labor market needs
- Motivation for educational and occupational achievement
- Placement in a job related to training
- Acquisition of useful occupational skills
- Positive attitude toward work
- Increased productivity
- Development of safe work habits and techniques
- Increased earnings
- Enhanced leadership capabilities
- Upgraded occupational competencies
- Increased potential for entrepreneurship
- Enhanced job advancement
- Increased job satisfaction
- Improved quality of work
- Retrained workers
- Reduced dropout rate

To provide evidence that supports or rejects the appropriateness of each of the eighteen outcomes, six authors were selected from the substantive fields of history, philosophy, psychology, sociology, economics, and futures research. The authors were asked to present the fundamental theories, concepts, and findings that could be used to support or reject each of the outcomes. On the basis of the evidence supporting or rejecting the outcomes, the authors were asked to show

the linkage of the evidence to each of the outcomes, including a rationale that upholds the use of the evidence to support or reject the outcomes. The following authors were selected for their expertise in the substantive field as well as their knowledge of vocational education.

John O. Crites (psychology)
Research Professor
College of Education
Kent State University
Kent, Ohio

Rupert N. Evans (history)
Professor
Department of Vocational
and Technical Education
College of Education
University of Illinois
Champaign, Illinois

David W. Stevens (economics)
Professor
Department of Economics
University of Missouri
Columbia, Missouri

Paul Violas (history)
Associate Dean
College of Education
University of Illinois
Champaign, Illinois

Mary Bach Malone (sociology)
Professor
Department of Vocational-
Technical Education
Graduate School of Education
Rutgers, The State University
New Brunswick, New Jersey

Harold G. Shane (futures research)
University Professor of Education
School of Education
Indiana University
Bloomington, Indiana

John F. Thompson (philosophy)
Professor
Continuing and Vocational Education
University of Wisconsin
Madison, Wisconsin

When initial drafts of the papers had been prepared, a working conference was held to provide an opportunity for invited participants to critique the papers and to interact with the authors. Where possible, the papers were distributed to the participants prior to the conference. At the conference, buzz groups, question and answer sessions, and work groups were used to promote group interaction and to ensure that each individual had an opportunity to provide input.

The invited participants and selected National Center staff had an opportunity (1) to raise questions about each author's paper, (2) to identify other evidence not covered in the papers, and (3) to discuss which outcomes were most appropriate for vocational education. The questions that were raised and the authors' responses are included in the full report (McKinney and Fornash 1983) from which this chapter was drawn. In addition, the invited participants were asked to submit written critiques of the papers. These critiques were shared with the six authors for consideration in the revisions they made in their papers.

Perspective for Interpreting Findings

The reader is cautioned that the evidence presented in this report represents only one set of input needed by those who are engaged in making decisions and policy resulting in the identifica-

tion of outcomes expected of vocational education. This caveat in no way minimizes the significance or power of the evidence presented in this report; it merely serves as a reminder that there is other input needed in identifying outcomes.

The identification of outcomes sparks heated debates among vocational educators and its varied support groups. Historically, there has been little agreement among vocational educators as to what outcomes should be expected. Vocational education has never had a single spokesperson or a prevalent view regarding outcomes, and it is doubtful that it will in the future.

Outcomes expected of vocational education vary greatly in the degree to which their attainment can be measured in strictly quantifiable terms. Different audiences also need varying degrees of specificity in measuring attainment of outcomes. The degree to which the attainment of an outcome could be measured was not a consideration in determining the appropriateness of outcomes to be included in this study.

Some authors of the commissioned papers chose not to develop their papers around the eighteen outcomes and/or failed to present evidence as requested. This shortcoming resulted in inadequate evidence in certain areas.

In each of the fields represented by the authors, there are many perspectives from which the papers could have been developed. Some papers were developed by authors using only one perspective. Other writers using other perspectives might reach different conclusions.

The list of eighteen outcomes does not include many outcomes that some individuals might rank highly. As indicated by Evans and Violas (1983) in their commissioned paper, the list of outcomes does not include some of the important outcomes desired by early advocates (who expected vocational education to lead to improvement of the workplace), by legislators (who see the achievement of equity through vocational education as a prime goal), and by practitioners (who are more concerned with maintenance or expansion of enrollments and the solution of daily problems than with grand designs).

Evidence/Implications

Support for Outcomes

On the basis of evidence presented in the papers, the following outcomes are supported for vocational education at the secondary and postsecondary levels.

- Upgraded occupational competencies
- Acquisition of useful occupational skills
- Retrained workers

On the basis of evidence presented in the papers, the following outcome for vocational education is supported when measured at the conclusion of the individual's vocational education program.

- Development of safe work habits and techniques

On the basis of evidence presented in the papers, the following outcome is supported for secondary and postsecondary vocational education when measured within six months after program completion and when vocational education completers are not compared with other workers.

- Satisfactoriness to employers

On the basis of evidence presented in the papers, the following outcomes are not strongly supported for vocational education at the secondary and postsecondary levels.

- Increased job satisfaction
- Increased potential for entrepreneurship
- Increased awareness of need for basic academic skills
- Placement in a job related to training

On the basis of evidence presented in the papers, the following outcomes are not supported for vocational education at the secondary and postsecondary levels.

- Enhanced leadership capabilities
- Positive attitude toward work
- Motivation for educational and occupational achievement
- Trained workers for labor market needs
- Improved quality of work
- Enhanced job advancement
- Increased productivity
- Reduced dropout rate
- Increased earnings

Implications

Implications for vocational education policymakers and decision makers at the federal, state, and local levels were formulated on the basis of the evidence presented in this report. The implications are as follows:

- Federal and state legislators should identify a minimum number of outcomes to be expected of vocational education. It is unreasonable to hold any program accountable for a multitude of outcomes.
- Outcomes identified for a program should complement each other. In the past, the achievement of certain outcomes resulted in poorer performance on other outcomes.

- State and local agencies should have flexibility in selecting outcomes. Policymakers and decision makers at the state and local levels have the best information and perspective to select outcomes congruent with the specific situations in which their programs operate.

- Local vocational educators, in cooperation with other selected individuals, should identify the goal of their programs and specify a limited set of outcomes. A vocational education program cannot do all things for all people.

- Policymakers and decision makers at all levels need to give careful study and consideration to the problem of either identifying outcomes based solely on traditional acceptance or identifying outcomes based solely on their assumed relevance to the latest political initiatives. Each vocational education program is unique in structure and in setting, and it operates in a unique setting. The outcomes expected of a vocational education program should reflect its uniqueness.

- Policymakers and decision makers at the federal and state levels should designate funds for inquiry concerning the development of a contemporary rationale for vocational education that can serve as a basis for identifying program goals and outcomes.

Suggestions for Further Study

The study of outcomes expected of vocational education should be a continuing effort. Vocational education operates in a context that changes rapidly. Vocational educators must be certain that outcome expectations for vocational education reflect these changes in appropriate ways.

Throughout the history of vocational education, numerous expectations have been held regarding the individual, society in general, and the vocational education program itself. These expressions have reflected viewpoints of sociologists, economists, philosophers, psychologists, and many others. Vocational education means many things to many individuals. It operates complex programs at many educational levels in extremely diverse settings. It may be unrealistic, therefore, to expect that one simple list of outcome statements will be relevant for all programs in all settings.

Given this context for vocational education programs, the following suggestions are made for further study.

- A logical relationship should exist between program goals and outcomes. It is obvious that considerable attention needs to be devoted to identifying the goals of vocational education. But the fact that vocational education is composed of several program areas, each giving varying emphasis to certain goals, results in critical problems of goal identification. The identification of goals is needed and should involve a broad range of individuals representing diverse perspectives. The process used to identify the goals should be anchored strongly in the philosophical base on which vocational education is built.

- Part of the problem inherent in goal identification is that most of the philosophical writing on vocational education was done prior to and immediately after the passage of the Smith-Hughes Act. If scholarly efforts are to be made in goal identification, there must be considerable attention given to the explication of a contemporary rationale for vocational education.

- Many of the outcomes considered in this study or identified by other individuals and groups have been economic in nature. In reality, schools are not industrial conglomerates turning out products. To continue to state outcomes as though the educational enterprise is based on an economic model and to apply the economists' research standards to the measurement of these outcomes is not congruent with the philosophical base for education. Outcomes expected of vocational education need to be consistent with the conceptual framework for vocational education. Once the outcomes have been identified, then researchers and evaluators need to develop and/or select methods and techniques that are conceptually consistent with the philosophical framework for vocational education and with the outcome undergoing inquiry.

- Much of the evidence concerning outcomes that is presented in the literature is useful only at one specific level of policymaking. As Stevens (1983b) so clearly noted, the user must be sure of the question to be answered and sure of the appropriate unit of analysis for answering the question. Considerable attention needs to be given to specifying appropriate questions, inquiry methods, and procedures.

- Some outcomes may be appropriate and reasonable but unrealistic in terms of cost. Shane (1983) suggested that the selection of outcomes to pursue should be based not only on the basis of contemporary social and occupational indicators, but also on the basis of probability-difficulty analyses.

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CHAPTER 4

RECENT RESEARCH ON LABOR MARKET OUTCOMES

Morgan V. Lewis

Introduction

The labor market outcomes associated with participation in high school vocational education have been a topic of continuing research interest since passage of the Vocational Education Act of 1963. This act, together with the Area Redevelopment Act of 1961 and the Manpower Development and Training Act of 1962, marked the beginning of an era of active federal involvement in the development of the human resources of the nation. With this federal involvement came a corresponding interest in evaluating the effectiveness of all training programs funded under these acts, including vocational education.

There have been two major periods of activity with regard to vocational eduction outcomes. One followed passage of the 1963 act and included studies by Eninger (1965), Kaufman et al. (1967), Corrazzini (1968), Taussig (1968), Hu et al. (1969), and Sommers, Sharp, and Myint (1971). The second major period followed passage of the 1976 amendments to the 1963 act. This period included the studies listed in order of their original publication in table 4-1.

These two groups of studies differ considerably in the sources of their data and the sophistication of their analyses. All of the first group used data collected specifically for those studies, often with fairly small samples that had limited geographic representation. The studies conducted in the second period reflect a major advance in the quality of data available for analysis. All of the studies in table 4-1 used data from national longitudinal studies of young people, mainly the National Longitudinal Surveys of Labor Market Experience (Center for Human Resource Research 1981) and the Longitudinal Study of the High School Class of 1972 (Riccobono et al. 1981).* Several of the studies in table 4-1 used information from school records to assess the extent of participation in vocational courses. This use represented a major methodological improvement over previous studies that had relied upon self-report by former students of the curricula they had followed while in high school.

SOURCE: This chapter is based on the report, *Recent Research on Labor Market Outcomes of Secondary Vocational Education*, published by the National Center for Research in Vocational Education (Lewis 1983).

*The National Longitudinal Surveys of primary interest in this chapter consist of three separate cohorts. In table 4-1 these cohorts are referred to as NLS young men, which began in 1966; NLS young women, which began in 1968; and NLS New Youth, which began in 1979. The Fredland and Little study used a separate NLS Cohort of Adult Men, which began in 1966.

TABLE 4-1

REPORTS ON OUTCOMES ASSOCIATED WITH PARTICIPATION IN PUBLIC VOCATIONAL EDUCATION

Author/Date	Data Examined	Sample Used	Curriculum Definition	Outcomes Reported[a]			
				1	2	3	4
Grasso and Shea 1979	NLS young men 1966 to 1973, NLS young women 1968 to 1972	In school and 10 to 15 years total schooling	Self-report	X	X		X
Wiley and Harnischfeger 1980	Class of 1972 to 1976	High school graduates	Administrator designation, information from school records	X	X		
Fredland and Little 1980	NLS adult men	White males who were ages 45-49 in 1966	Self-report		X		
Gustman and Steinmeier 1982	NLS young men and women to 1972, Class of 1972 to 1976	NLS, 17-year-olds at initial survey, high school graduates only	Self-report, information from school records	X	X		
Woods and Haney 1981	Class of 1972 to 1976, NLS young men to 1976, NLS New Youth base year	High school graduates to 15 years total schooling, limited analyses of dropout	Self-report, some analyses using information from school records	X	X	X	X
Meyer 1981	Class of 1972 to 1979	High school graduates	Information from school records	X	X		

TABLE 4-1 (continued)

Author/Date	Data Examined	Sample Used	Curriculum Definition	Outcomes Reported*			
				1	2	3	4
Campbell et al. 1981	NLS New Youth to 1980	High school graduates for whom school transcripts were available	High school transcripts	X	X	X	X
Mertens and Gardner 1981	Special survey of 1,539 persons ages 20 to 34, NLS young men 1966 to 1976, NLS young women 1968 to 1978, Class of 1972 to 1979	High school graduates	Self-report	X	X	X	X
Rumberger and Daymont 1982	NLS New Youth to 1980	Not enrolled 9 to 12 years total schooling for whom school transcripts were available	High school transcript	X	X	X	X
Gardner, Campbell, and Seitz 1982	NLS New Youth to 1981	High school graduates for whom school transcripts were available	High school transcript	X	X	X	X

*Outcomes Reported

1 = Measures of employment-unemployment
2 = Hourly, weekly, or yearly earnings
3 = Employment in a job related to field of training
4 = Occupational category and status

The interest in the labor market outcomes associated with participation in high school vocational education does not appear to arise from the size of the federal investment in this field. In the 1979-80 school year, federal expenditures on all levels of vocational education were about $735 million—less than 0.2 percent of the total federal budget and only 11 percent of total federal, state, and local expenditures for vocational education (National Center for Education Statistics 1982). The interest seems to stem from a widespread skepticism about the value of training for occupations at the high school level. There are many arguments on both sides of this issue; but if a clear labor market advantage were found for vocational participation, holding as well as possible all other factors equal, many of these arguments would be moot. Conversely, skill training must be justified on other grounds if it is not associated with higher wages, more stable employment, or other appropriate measures of labor market experience.

Focus of the Paper

Preparing the Synthesis

This chapter synthesizes the major findings from the studies that are listed in table 4-1 regarding the labor market outcomes associated with participation in high school vocational education. All of the studies listed were conducted using information from samples that are representative of the nation as a whole and were published since the passage of the 1976 amendments to the Vocational Education Act of 1963.

Much of the preparation of this synthesis took place during a small convening that was held at the National Center on October 27-28, 1982. One of the authors from each of the studies listed in table 1 was invited to attend. The following individuals were able to do so: Paul Campbell, National Center; Thomas Daymont, Temple University; Eric Fredland, U.S. Navel Academy; John Gardner, National Center; John Grasso, West Virginia University; Walt Haney, Huron Institute; and Thomas Steinmeier, Texas Technological University. Rupert Evans, professor emeritus, University of Illinois, was in residence at the National Center as a visiting scholar and also took part.

During the convening the participants reviewed a preliminary summary of the research that had been prepared by Morgan Lewis and suggested changes, additions, and deletions. Following the convening a revised draft was prepared incorporating these suggestions and was submitted to the participants for additional review.

This chapter attempts to reflect the best current knowledge on the labor market outcomes associated with participation in secondary vocational education. While the author has the responsibility for the final contents of the chapter, these contents do reflect, as well as possible, his assessment of the consensus of the participants at the convening.

Variability of Vocational Education

It is generally recognized that secondary vocational education is not a uniform curriculum. It varies both across and within occupational areas. Some of these studies attempted to analyze separate occupational areas, but typically the only areas with sufficient numbers of respondents to yield reliable results are business and office and trade and industry.* Of these two areas, business

*Representative national samples of the total youth population do not contain enough respondents in the other vocational areas to yield sufficient numbers for analysis.

and office is the more uniform. Virtually all the students in this area take training in typing and most also take bookkeeping, shorthand, and office practice (Seitz 1982). Training available under the trade and industry category, however, includes such diverse occupational areas as automobile mechanics, welding, carpentry, drafting, electronics, and cosmetology, to name only the six most popular during the 1979-80 school year (National Center for Education Statistics 1982).

In addition to this variability in content, Campbell, Orth, and Seitz (1981) have documented the wide variability in extent of participation in vocational courses. Five distinct patterns of course taking have been identified, ranging from students labeled "Concentrators," who take a large number of interrelated vocational courses, to those labeled "Incidental/Personal," who take one or two courses apparently out of personal interest or as part of occupational exploration. Although undocumented, there is probably an equally wide variability in quality of programs.

Before summarizing the results for the outcome variables listed in table 4-1, the nature of the labor market on which they are based should be noted. The oldest data analyzed in the studies were collected in 1966 and the most recent, in 1981. There has been no other period in the United States when there was a greater supply of entry-level workers. The combined effects of the 1946-to-1964 baby boom and the reentry of women into the labor force yielded an unprecedented number of individuals seeking entry-level employment. This large supply of job seekers undoubtedly depressed the wages for all new labor market entrants. Furthermore, the increases in the number of young people with high school vocational preparation during this period may have minimized any labor market advantages this training conferred (Gustman and Steinmeier 1979).

Labor Market Outcomes

The main labor market outcomes examined in the ten studies summarized in table 4-1 are employment-unemployment, earnings, relationship between training and employment, and occupational category and status. In each of the studies, the experiences of former students with some degree of vocational training (defined as indicated in the table) were compared to various other similar students with less vocational training but with similar levels of educational attainment in general academic courses. In most cases, those in the samples selected for analysis had less than sixteen years of formal education; and regression techniques were used to control the effect of other characteristics, such as sex and race, on the outcome variables. To the extent that these characteristics were accurately measured and included in the regression analyses, those studies provide estimates of the independent or net effect of vocational training on the outcomes examined.

None of these studies, however, had any controls for the self-selection of students into vocational courses. Currently available models of the experiences of recent labor market entrants explain a fairly small percentage of individual variability. Models incorporating fifteen or twenty measures of individual characteristics and educational experiences typically explain less than 10 percent of the variability in earnings or employment. It seems likely that there are other individual traits not included in these models that influence both the selection of high school courses and subsequent experiences in the labor market. Until controls for self-selection are included in the analyses of educational effects, there will be some uncertainty whether an observed result is caused by a particular educational experience or caused by unmeasured characteristics of individuals that led them to take part in that experience. The results summarized next reflect the best evidence currently available on the labor market outcomes associated with participation in high school vocational education.

Employment-Unemployment

The standard method for defining employment and unemployment developed by the U.S. Bureau of Labor Statistics requires that an individual either hold a job or be actively seeking employment in the civilian labor market. Members of the military, full-time homemakers, students who do not want to work, the physically disabled, and discouraged workers who are not seeking jobs because they think none are available are all excluded from the definition. Nine of the ten studies in table 4-1 examined employment-unemployment and all used measures that were conceptually derived from the Bureau of Labor Statistics' definition. Three different measures are reported: (1) employment status at the time of the survey, (2) total weeks employed in the year prior to the survey, or (3) total weeks unemployed in the prior year.

When the first measure was used—status at the time of the survey—only Grasso and Shea found significantly less unemployment for vocational graduates. Woods and Haney, and Mertens and Gardner did not find a statistically significant advantage, but Campbell et al. found a consistent, albeit nonsignificant, tendency for higher levels of participation in vocational courses to be associated with less unemployment.

On the other two measures, there was a clear tendency for female vocational graduates, particularly from business and office programs, to be either employed more weeks or, conversely, unemployed fewer weeks per year. The differences in employment between vocational and comparison groups were usually about one to two weeks per year.

Among males, increased employment was not as consistently associated with vocational preparation. Rumberger and Daymont and Gardner, Campbell, and Seitz found less unemployment for students with extensive vocational preparation. Rumberger and Daymont estimate that a half day in vocational courses for a school year (about three credits) would be associated with about one to one-and-one-half fewer weeks of unemployment per year. The other studies, however, did not find such difference among males with and without vocational preparation.

Earnings

The evidence on earnings follows a similar pattern to that of employment. Women who received high school vocational preparation in business and office courses consistently were found to earn more than their counterparts without such preparation. The size of this advantage ranges from low estimates of $9.00 to $11.00 per week reported by Gustman and Steinmeier and Meyer, to a high of about $20.00 reported by Woods and Haney.*

The evidence for males is much more mixed. Wiley and Harnischfeger found a clear earnings advantage for vocational preparation, but this advantage diminished over time. Fredland and Little found a long-term advantage if the training was used in current employment.**

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*All earnings were converted to constant 1978 dollars using the Consumer Price Index. For some studies this required making conversions from other base years that were reported.

**The Fredland and Little study differs sharply from others summarized in this paper in terms of the characteristics of their sample, which consisted of white males who were forty-five to forty-nine in 1966 and had received their military or civilian vocational training during or shortly after World War II. All of the other samples consist of young people who left high school during the 1960s or later.

Four studies (Gustman and Steinmeier; Meyer; Mertens and Gardner; and Gardner, Campbell, and Seitz) found advantages in hourly wages for those who took certain vocational programs, usually trade and industry, or in weekly or annual earnings. These advantages were often realized because vocational preparation was found to be associated with working more hours per week. The four remaining studies (Grasso and Shea, Woods and Haney, Campbell et al., and Rumberger and Daymont) found no earnings advantage from vocational preparation for males.

Employment Related to Training

Whether or not individuals obtain jobs in the occupational areas in which they were trained has an intuitive appeal as a criterion by which to evaluate training programs. Unfortunately, translating that appeal into an objective and reliable measure of the training-employment relationship is no easy task. Two main approaches are used. One asks former students to rate the similarity between their training and the skills needed on their jobs. The Mertens and Gardner study used this approach. The other method is to classify both the training and employment according to standard educational and occupational codes and to compare them using a "crosswalk" that cross-classifies the two codes. The Campbell et al. and Rumberger and Daymont studies used this approach. Woods and Haney used both methods.

The problem with the first approach is that subjective ratings tend to be lenient. Most respondents, even those who received little occupational preparation, tend to see relationships between what they studied and the skills needed on the job. The problem with the second approach is the low level of correspondence between some of the educational and occupational codes. This problem is particularly acute in matching the various educational programs classified in the general category of trade and industry with the many varied occupations classfied as skilled trades. When the match is made at this level, training and employment in such diverse skills as carpentry and auto mechanics, or cosmetology and welding, would be considered related. There is much closer correspondence between the classifications of vocational programs and occupations in the other crosswalk categories.

What is of interest, given the difficulties with these methods, is the similarity of the results they yield. In the Mertens and Gardner study, 60 percent of former trade and industry students reported that they used the skills they studied in their most recent jobs "a great deal" or "a fair amount."* When Woods and Haney and Rumberger and Daymont used different education-occupation crosswalks, the results they obtained for trade and industry relatedness for men were 53 percent and 65 percent. The corresponding figures for females from business and office programs were 65 percent in related jobs as measured by respondents' rating (Mertens and Gardner), and crosswalk results of 58 percent (Woods and Haney) and 60 percent (Rumberger and Daymont) in related jobs.**

These results were obtained for the two program areas with the largest enrollments, and as discussed previously, the figures for business and office probably reflect a much closer match than similar figures for trade and industry. The rates for other programs were generally lower, with

*These were the two highest ratings. The other two alternatives were "not very much" and "not at all."

**The percentages from Woods and Haney are for whites only. The corresponding figures for blacks are slightly lower. The other two studies did not report results by race.

the medians falling in the 25 to 35 percent range. Campbell et al. found that the strongest outcome of increased participation in interrelated vocational courses was to increase the likelihood of obtaining related employment.

Occupational Category and Status

Former students with vocational preparation have some tendency to obtain different types of jobs than other students. Males who take trade and industrial programs are a little more likely to obtain skilled jobs, and females from business and office programs are more likely to obtain clerical positions. For females, these clerical positions are associated with significantly higher scores on the Duncan socioeconomic index, which measures the perceived status or prestige of various occupations.

Longitudinal analyses by Grasso and Shea, Woods and Haney, and Mertens and Gardner found a tendency for most young workers to move up in skill levels over time. Grasso and Shea's analysis suggests that vocational students were progressing at a slower rate than students from other curricula, but Woods and Haney found that when educational attainment was controlled, there was no such difference.

Conclusions

The results summarized in this paper are based primarily on longitudinal studies of four separate samples of young people. Different investigators have used different specifications to select and analyze the data from these samples and have obtained somewhat different results. Overall, however, there is more agreement than disagreement. Considering the variability that exists across programs regarding content, quality, and extent of student participation and that also exists with regard to the labor markets in which young people seek jobs, the surprising fact is not that there is disagreement but that some fairly consistent results are found. The following conclusions appear warranted based on the information currently available:

- Vocational preparation in business and office courses reduces the amount of time that young women will be unemployed after they leave high school by about one to two weeks per year.

- Vocational preparation in business and office courses increases the average weekly earnings of young women after they leave high school by about $10 to $20 per week. Young men from trade and industry courses sometimes earn more, but this outcome usually results because they work more hours per week.

There are several possible explanations for the labor market advantages consistently found for females who received business and office training. The skills taught in this area are the most standardized of any vocational program. They are applicable in any office setting in any part of the country. The demand for office workers since the late 1960s, the period covered by most of these studies, has been steadily increasing. In addition, office work is one of the few skilled areas in which there is screening of the prospective employees on the basis of an easily administered measure of performance—a timed typing test. Vocationally prepared students who have learned one of the basic office skills can easily demonstrate their proficiency, and this skill appears to give them an advantage over similar job seekers without such preparation.

Having said this, it should be acknowledged that the advantages associated with business and office training are not usually found for males. The failure to find signficant effects for males may be caused by the smaller number who take this training, or it may be that employers are less likely to hire males for these jobs. The advantages typically found for females are in jobs that are traditionally female dominated. Although business and office training confers an earnings and employment advantage to females, by this very fact such training may also contribute to continuing sex stereotyping in the labor force.

- About half of all females who receive vocational preparation in business and office skills and about half of all males who receive training in the trade and industry areas while in high school obtain jobs in which they use the skills they studied.

- Males who received training while in high school in the trade and industry area are a little more likely than similar males without such training to obtain jobs classified as skilled trades. Females who received training in business and office skills are more likely than females without such training to obtain clerical jobs.

The seemingly simple concept of employment in jobs that are related to training has proven very difficult to measure in an acceptable fashion. Nevertheless, the attempts that have been made using quite different methods tend to yield roughly similar results. Furthermore, the employment patterns of former high school students with and without vocational preparation are a little different. Taken together, these two pieces of evidence suggest that a sizeable percentage of former students use the vocational preparation they received in high school in the jobs they obtain. The size of this percentage varies by program area and sex, but tends to cluster in a range of about 30 to 60 percent.

This paper has examined only one limited aspect of the many objectives that high-school-level vocational education is designed to achieve. It is further limited in that it has focused on those outcomes that have been examined most frequently in recent research. The evidence that was summarized has generally indicated some labor market advantages, particularly for females who were in business and office programs, or has been mixed, particularly for males who were in trade and industry programs. These are the areas for which the most information is available. The failure to find effects for the other areas may reflect the lack of sufficient evidence for these programs caused by the small number of respondents from these programs who are included in the national data bases. This limitation suggests caution in drawing negative conclusions on the basis of findings demonstrating no significant difference between former high school students with and without vocational preparation. One should not conclude on the basis of inadequate evidence that high school vocational education has no effect on subsequent labor market experience when the most adequate evidence indicates that it does.

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